SPH Facility Assessment and Phased Renovation Plan

South Peninsula Hospital

November 01, 2024

Prepared for:

Prepared & Managed by:

In Collaboration with:

Prepared For:

South Peninsula Hospital
4300 Bartlett Street
Homer, AK 99603

Kenai Peninsula Borough
47140 East Poppy Lane
Soldotna, Alaska 99669

Prepared By:

Architects Alaska Inc.
900 West 5th Avenue, Suite 403
Anchorage, Alaska 99501

RESPEC
2700 Gambell Street, Suite 500
Anchorage, Alaska 99503

Survey Team:

Architects Alaska
David Moore, Principal Architect
Kathleen Benoit, Associate Principal, Project Manager
Diane Heaney-Mead, Senior Medical Planner
Jacqueline Edwards, Facility Assessment
Kelsea Johnson, Facility Assessment

RESPEC
Robert Posma, Engineering Team Lead
Randy Williams, Mechanical Engineer
Brian Hayden Electrical Enginner

Table of Contents

1. Executive Summary

A. Introduction

South Peninsula Hospital (SPH) and the Kenai Peninsula Borough (KPB) contracted with Architects Alaska (AAI) to provide a Facility Assessment and Phased Renovation Plan for the South Peninsula Hospital, located at 4300 Bartlett Street in Homer, Alaska. The Facility Assessment describes a deep dive into the facility infrastructure systems and energy use analysis. The phased renovation plan outlines the space available for development by replacing and relocating mechanical, electrical, and facility support spaces outside of the hospital. Potential developments explored include expanding existing hospital programs, relocating programs to the hospital property, and utilizing space for outpatient clinics. Property acquisitions near the hospital were explored as part of this effort.

B. Scope of Project

An onsite review of the existing South Peninsula Hospital in Homer, Alaska, was conducted in November of 2023. This review included the main hospital and exterior grounds within the same property lot. The facility assessment looked at each part of the building's infrastructure and systems and recorded information regarding the building for general material condition, systems condition, code deficiencies, and functional effectiveness. Some areas of the hospital were undergoing remodeling during the survey.

The team had existing facility drawings, as-builts from a 2007 addition, a Facility Master Plan dated April 2023, and extensive knowledge of the building through work on several projects. Cost estimates were excluded from this scope of work.

C. Key Findings

Much of the existing HVAC equipment throughout South Peninsula Hospital has passed it's useful life and is in need of repair or replacement. Due to the age of equipment, parts are becoming increasingly difficult to procure. There are numerous leaks throughout the hospital due to material failures that need to be addressed.

The energy audit indicated that replacement of equipment alone would not generate significant energy savings and that the hospital would benefit from major changes to their HVAC strategies.

South Peninsula Hospital is struggling with a lack of available parking and inadequate site wayfinding. Hospital departments lack available adjacent space within the hospital for growth. Many of the architectural deficiencies can be addressed through maintenance programs, small projects, or in conjunction with other projects.

D. Recommendations

In consultation with South Peninsula Hospital, the following packages were developed to help logically group and prioritize work for funding purposes and to align with the Hospital's Master Plan. Below is an overview of the work proposed, details are outlined in the appendix for each discipline.

> Phase 1: Repair and replace existing piping and equipment to address leaks. Add carbon filters to address exhaust fumes from the helipad, and add ventilation to the elevator pit and machine room as required by code.

Phase 2 - Central Plant: This package includes the development of a central plant building that would include a boiler plant, chiller plant, emergency generator, and potentially space for facilities. A central plant would minimize disruption to existing systems and would ultimately free up prime real estate in the hospital for future infill development.

Phase 3 – Domino Renovation/Remodel: This package includes the phased replacement of air handlers, heat pumps, and the consolidation of IT and electrical rooms. It is proposed that the work occur in conjunction with remodels.

2. Phased Renovation Plan

The Facility Planning Diagrams aim to consolidate some clinics currently located in leased properties or are predicted to grow. The Facility Planning Diagrams used data in the 2023 Facility Master Plan to determine each department's anticipated growth needs and the big-picture relocation of infrastructure services. A summary of the diagrams is as follows:

Phase 1 - Current State Diagrams

The hospital departments are identified in the Current State Drawings with corresponding sqft schedules, which represent today's department adjacencies and programs that are in the Hospital's main building.

It is not anticipated that the phase 1 work would result in changes to hospital departments or the building footprint.

Phase 2 – Central Plant & Site Diagrams

The utility spaces located at the building's central core are planned to be replaced and upgraded for code compliance and are relocated to the east side of the loading dock, which opens the core of the building for future growth of the first and partial second floor. This new building also allows for facilities to relocate out of the first-floor curved area. After critical infrastructure has moved out of the core, the hospital has the opportunity to infill the courtyard and expand existing programs that are currently landlocked between departments. The surgery department could relocate Sterile Processing, create a restricted or semi-restricted corridor, and expand the Pre / Post and PACU function, which in turn would increase output for the Operating Rooms. The spaces are noted on the planning diagrams as areas for future program growth.

Phase 3 – Domino Renovation/Remodel Floor Plans

Diagram A

Relocating The Infusion Department to 3832 sqft of the Core and Shell space on the first floor of the hospital moves it from a leased building to the core and shell space and right-sizes the department and its functions. The space has metal panels that can be turned into glazing units allowing the infusion patients to enjoy a view of the mountains and water. It also creates a private entrance for the immune compromised patients who may or may not be feeling well as they come for treatments. The relocation of this Cancer Care space also provides the opportunity for co-location with the re-located Pharmacy. Moving the Pharmacy department from the first floor allows the 2100 sqft pharmacy to be brought into code compliance with the critical USP 797/800 Pharmacy Regulations. The pharmacy will still serve the rest of the hospital but will not need to transport Infusion IV's outside or down the hill to the old infusion space. The empty sqft on the second floor is planned to be remodeled to include the new modality for SPH, a 1479 sqft Nuclear Medicine Program and its associated support spaces, like the Hot Lab and Control Room. The reflection room moves to the second floor and the coffee bar backfills the existing reflection room space, allowing the corridor to remain clear for circulation and connection between spaces.

CURRENT STATE

- ADMINISTRATION
- CIRCULATION/COMMON
- CLINIC
- DIAGNOSTIC IMAGING
- ELECTRICAL
- ELECTRICAL TO REMAIN IN CORE
- ENTRY
- EVS
- FACILITIES
- LOADING DOCK
- LONG TERM CARE
- MATERIALS MANAGEMENT
- MECHANICAL
- MED STAFF
- MORGUE
- NEUROLOGY
- NUTRITION
- OPEN SPACE
- PATIO
- PHYSICAL AND OCCUPATIONAL THERAPY
- PHYSICAL THERAPY
- QUALITY MANAGEMENT
- SLEEP
- SPEECH THERAPY
- SURGERY & SPD
- UNASSIGNED
- VERTICAL CIRCULATION

1 CURRENT STATE LEVEL 1

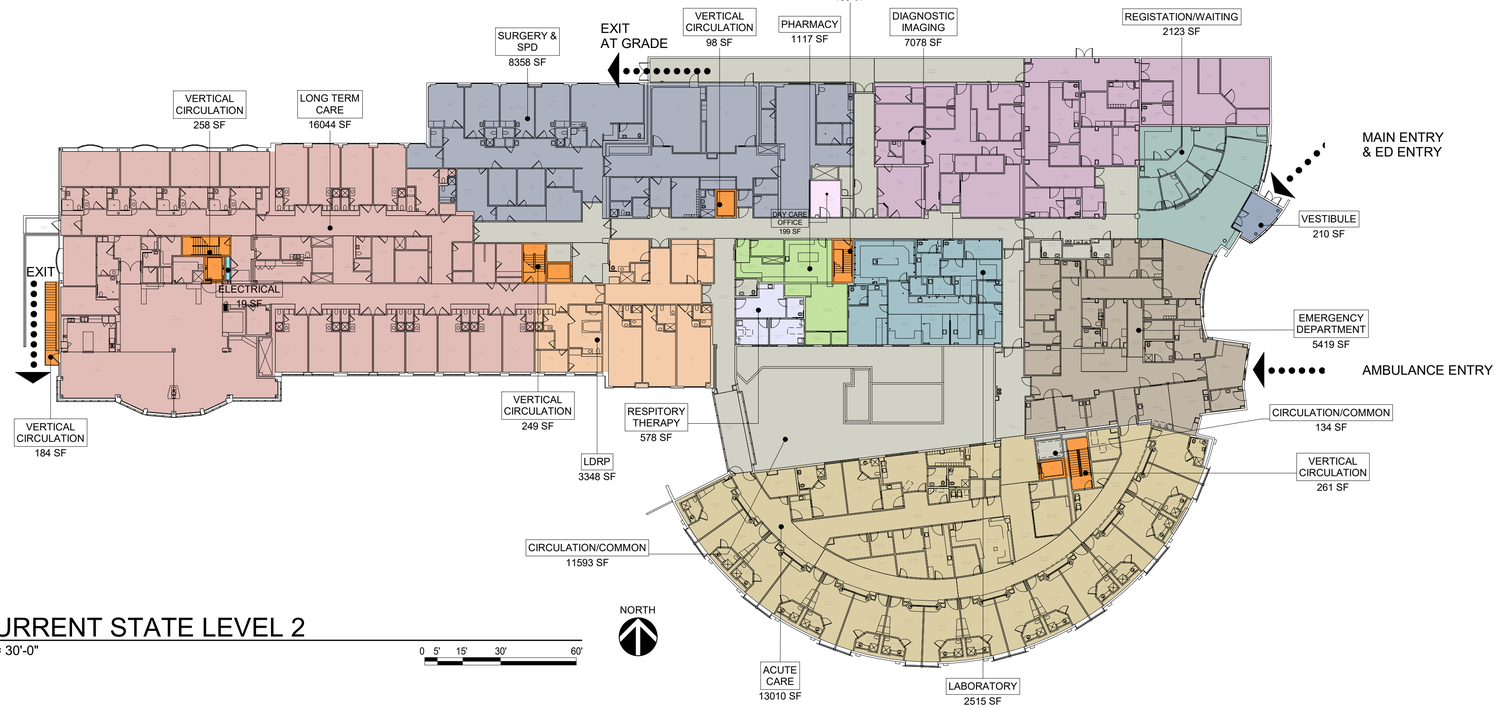
1" = 30'-0"

NORTH

0 5' 15' 30' 60'

Current State Area Schedule	
Name	Area
ACUTE CARE	13010 SF
ADMINISTRATION	192 SF
CIRCULATION/COMMON	<varies>
CLINIC	1517 SF
DAY CARE OFFICE	199 SF
DIAGNOSTIC IMAGING	7078 SF
ELECTRICAL	<varies>
ELECTRICAL TO REMAIN IN CORE	156 SF
EMERGENCY DEPARTMENT	5419 SF
ENTRY	<varies>
EVS	<varies>
FACILITIES	<varies>
LABORATORY	2515 SF
LDRP	3348 SF
LOADING DOCK	2297 SF
LONG TERM CARE	16044 SF
MATERIALS MANAGEMENT	3683 SF
MECHANICAL	<varies>
MED STAFF	185 SF
MORGUE	278 SF
NEUROLOGY	<varies>
NUTRITION	<varies>
OPEN SPACE	964 SF
PATIO	5885 SF

Current State Area Schedule	
Name	Area
PHARMACY	1117 SF
PHYSICAL AND OCCUPATIONAL THERAPY	1515 SF
PHYSICAL THERAPY	<varies>
QUALITY MANAGEMENT	<varies>
REGISTATION/WAITING	2123 SF
RESPITORY THERAPY	578 SF
SLEEP	522 SF
SPEECH THERAPY	266 SF
SURGERY & SPD	8358 SF
UNASSIGNED	7141 SF
VERTICAL CIRCULATION	<varies>
VESTIBULE	210 SF



2 CURRENT STATE LEVEL 2

1" = 30'-0"

NORTH

0 5' 15' 30' 60'

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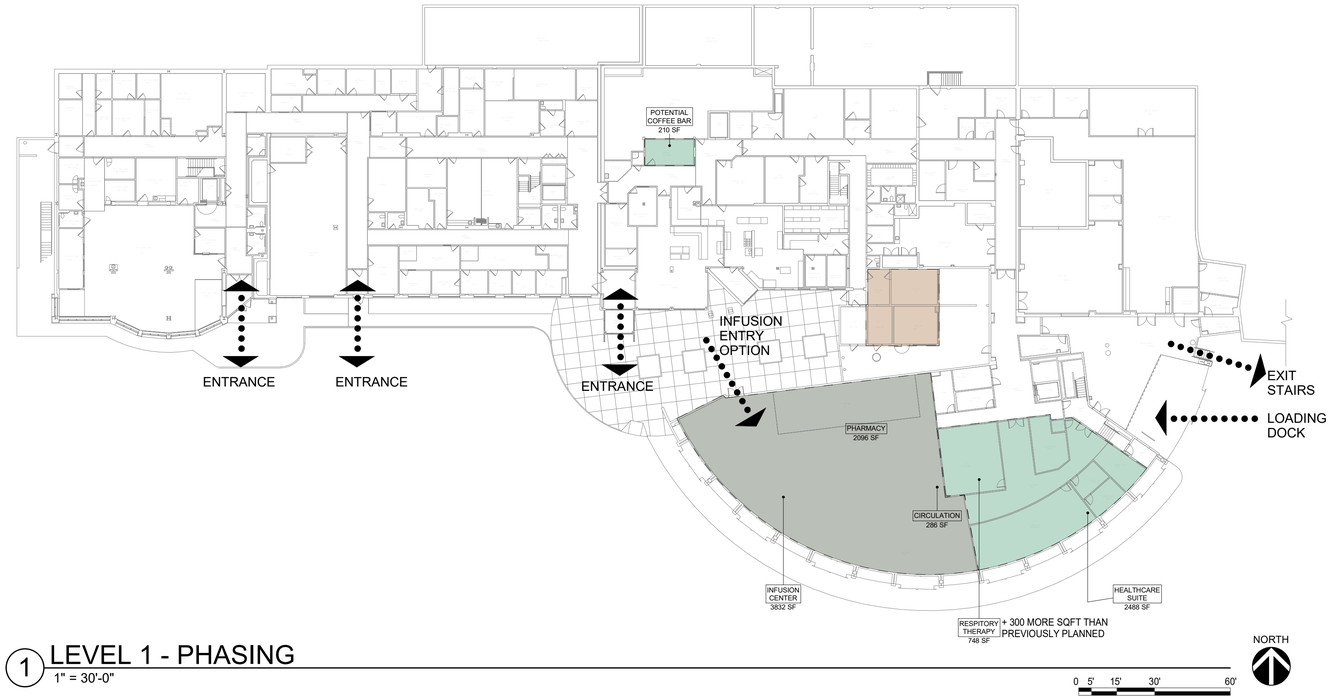
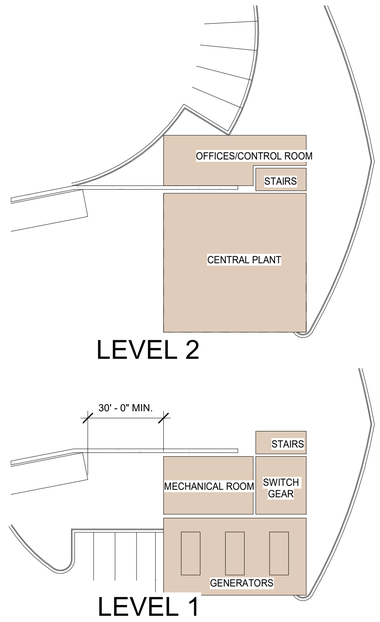
South Peninsula Hospital

Current State

Facility Assessment and Phased Renovation



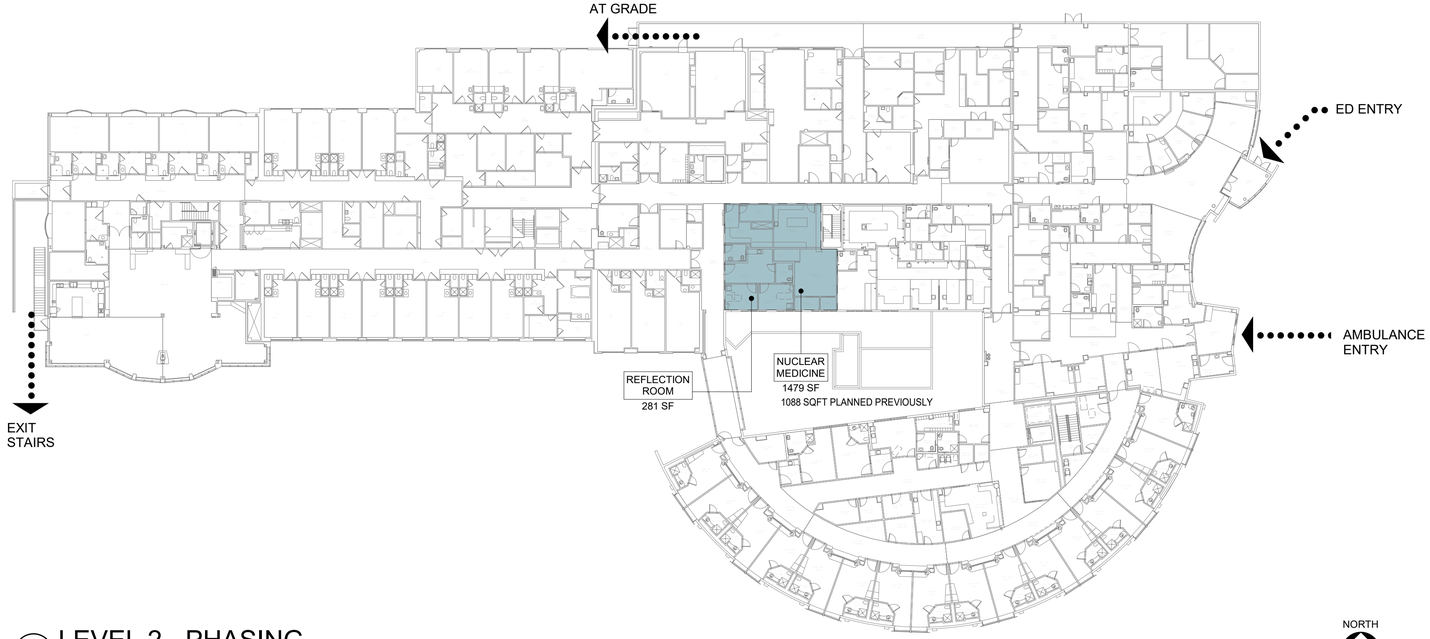
1 LEVEL 1 - PHASING
1" = 30'-0"



3 UTILITY BUILDING
1" = 30'-0"

PHASING LEGEND

THROUGHOUT FACILITY	PHASE I: FACILITY MAINTENANCE AS DESCRIBED IN PRIORITY LISTS
	PHASE II; RELOCATE GENERATOR AND CENTRAL COURTYARD UTILITIES, CONSTRUCT POWER SERVICE & GENERATOR BUILDING & FACILITIES DEPARTMENT SPACE; SEE SITE DIAGRAMS
	PHASE III; RELOCATE PHARMACY DEPARTMENT FROM SECOND FLOOR AND INFUSION DEPARTMENT FROM LEASED BUILDING TO FIRST FLOOR
	PHASE III A; CONSTRUCT NUCLEAR MEDICINE AND SUPPORTING ROOMS IN OLD PHARMACY LOCATION. RELOCATE REFLECTION ROOM TO SECOND FLOOR
	PHASE III B: BACKFILL COFFEE BAR, RESPIRATORY THERAPY, FUTURE CLINIC SPACE OR FACILITIES



2 LEVEL 2 - PHASING
1" = 30'-0"

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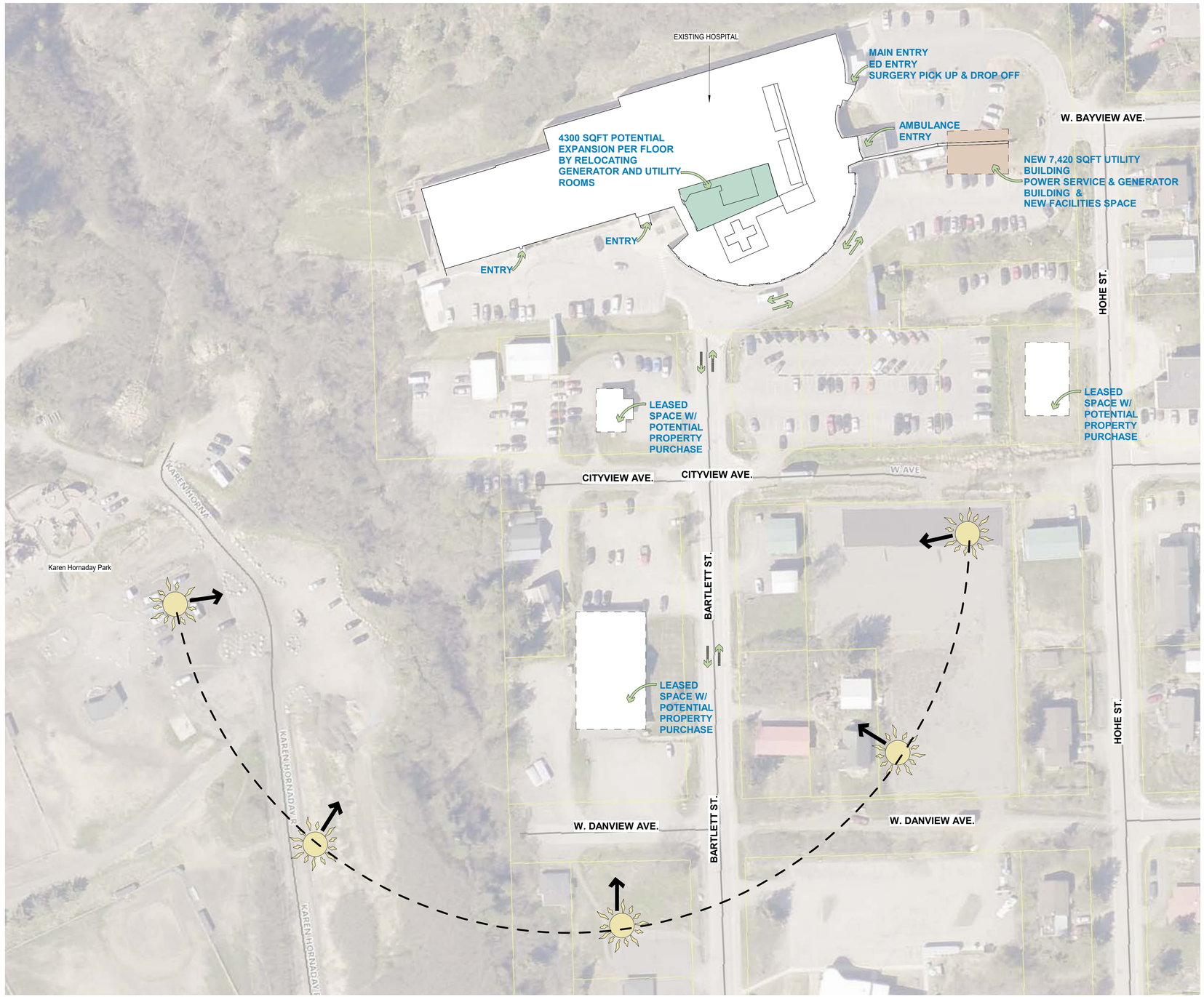
South Peninsula Hospital

Facility Assessment and Phased Renovation

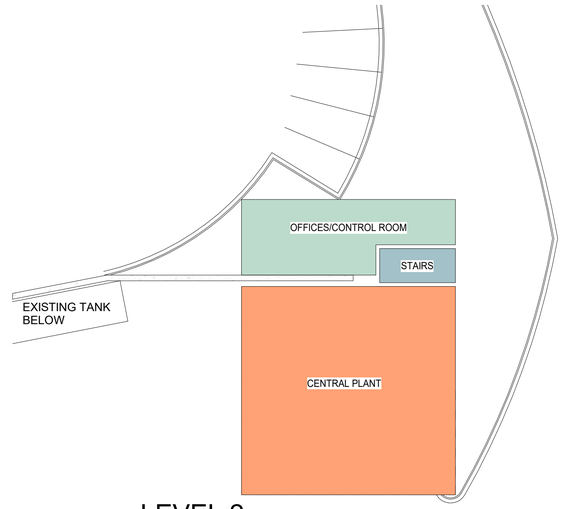
Phasing



1 SITE & PARKING LAYOUT
1" = 60'-0"

NORTH

0 10' 30' 60' 100'



LEVEL 2

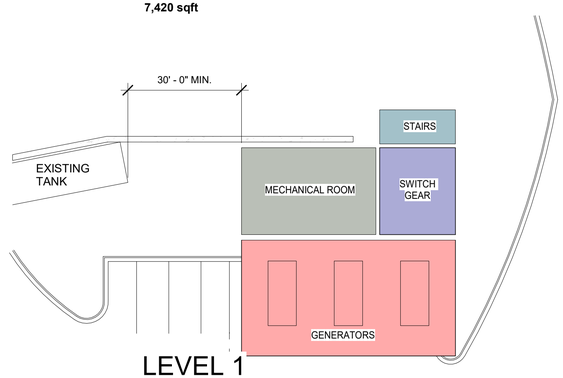
Utility Relocation Study

Level 1

Electrical Switchgear Room	460 sqft
Generator Room (3 Generators @ 50% estimated load)	1726 sqft
Mechanical	814 sqft
Stairs	180 sqft
Subtotal Areas +/-	**3,180 sqft**

Level 2

Central Plant	3100 sqft
Office / Control Room	960 sqft
Stairs	180 sqft
Subtotal Areas +/-	**4,240 sqft**
Total Usable Areas +/-	**7,420 sqft**



LEVEL 1

2 UTILITY BUILDING STUDY
1" = 20'-0"

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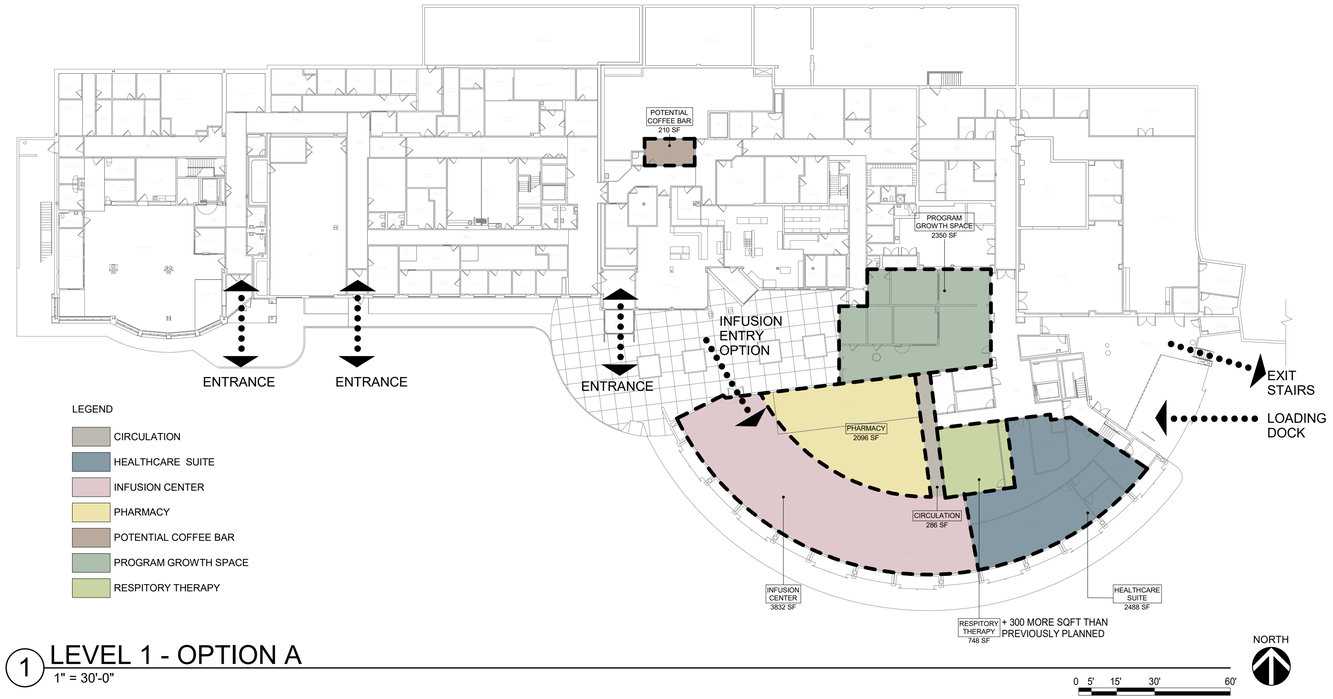
South Peninsula Hospital

Facility Assessment and Phased Renovation

Phase 2



1 LEVEL 1 - OPTION A

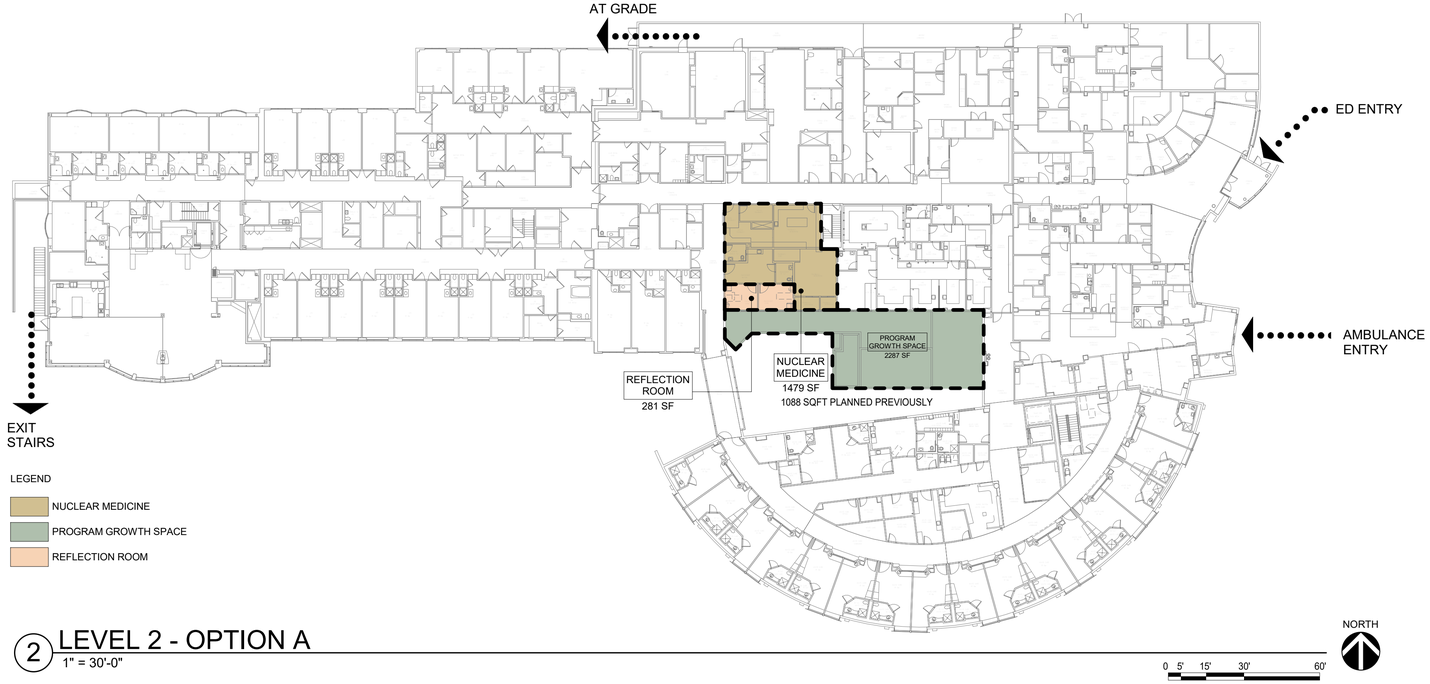
1" = 30'-0"

ADVANTAGES

- Pharmacy relocates and is brought up to compliance for USP 797 / USP 800 for Hospital Pharmacies as well as other current codes
- Expansion available for growing Ambulatory Infusion Programs
  Addresses the aging population who are more likely to develop chronic diseases which require ongoing infusion therapy as well as an increase in the number of people with chronic conditions
- Creates Infusion Entry Separation for patient care and infection control and protection of patients who are immunocompromised
- Natural Light & Views For Infusion Center
- Growth space for Respiratory Therapist (RT) Program
- RT located near Elevators for easy access to all department needs and is 300 sqft bigger than previously planned
- Nuclear Medicine located on same level as Imaging for department efficiencies / adjacencies
- Relocated Reflection Room to the second floor with access to daylight and refresh of space for a hospitality, welcoming, and warm environment
- Coffee Bar relocates out of circulation / corridor zone and can provided seating / break zones

DISADVANTAGES

- Displaces Facilities and Storage
- Cost for structural upgrades for Nuclear Medicine
- Reduced parking at the loading dock zone for utility building accommodations



2 LEVEL 2 - OPTION A

1" = 30'-0"

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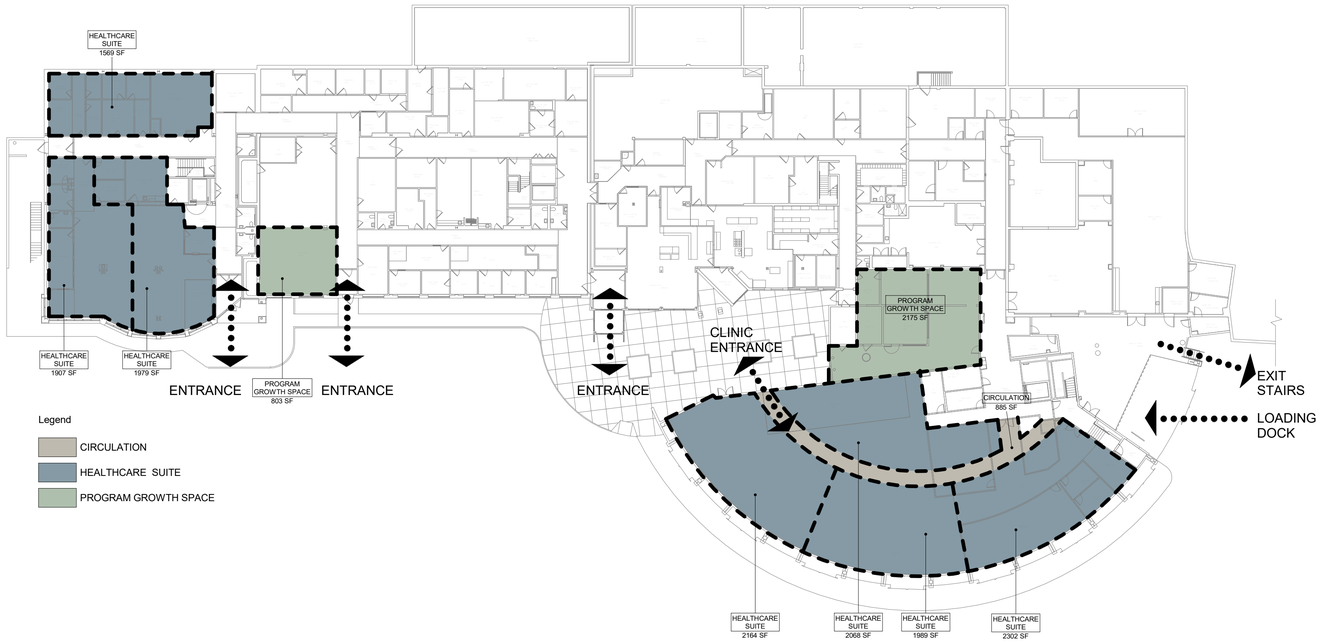
South Peninsula Hospital

Facility Assessment and Phased Renovation

Phase 3

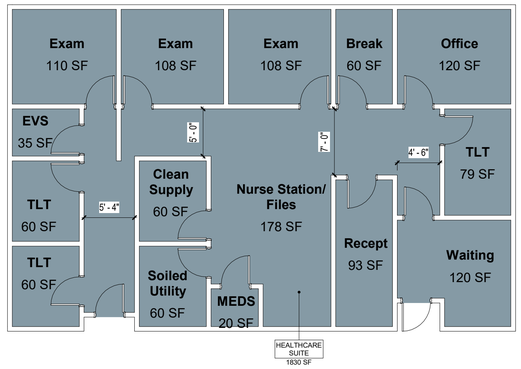


1 LEVEL 1 - HEALTHCARE SPACE

1" = 30'-0"

NORTH

0 5' 15' 30' 60'



Outpatient Ambulatory Clinic - Example

Lobby			240	
Waiting		1	120	120
Reception/Check-in	1	60	60	
Check-out Window		1	60	60
Patient Care			684	
Physician Office/Consult		1	120	120
Exam Room		3	108	324
Nurse Work Area		1	40	40
Patient Toilet		1	60	60
Clean/Supply Room		1	60	60
Medications Storage		1	20	20
Soiled Utility Room		1	60	60
Medical Records				60
Medical Records Files		1	60	60
Support Spaces			216	
Staff Toilet (Male)		1	60	60
Staff Toilet (Female)		1	60	60
Staff Break Room		1	60	60
Housekeeping / EVS		1	36	36
Tenant Suite		1,200	1,200	1.53	1,840
Clinic Usable Areas +/-					1,840

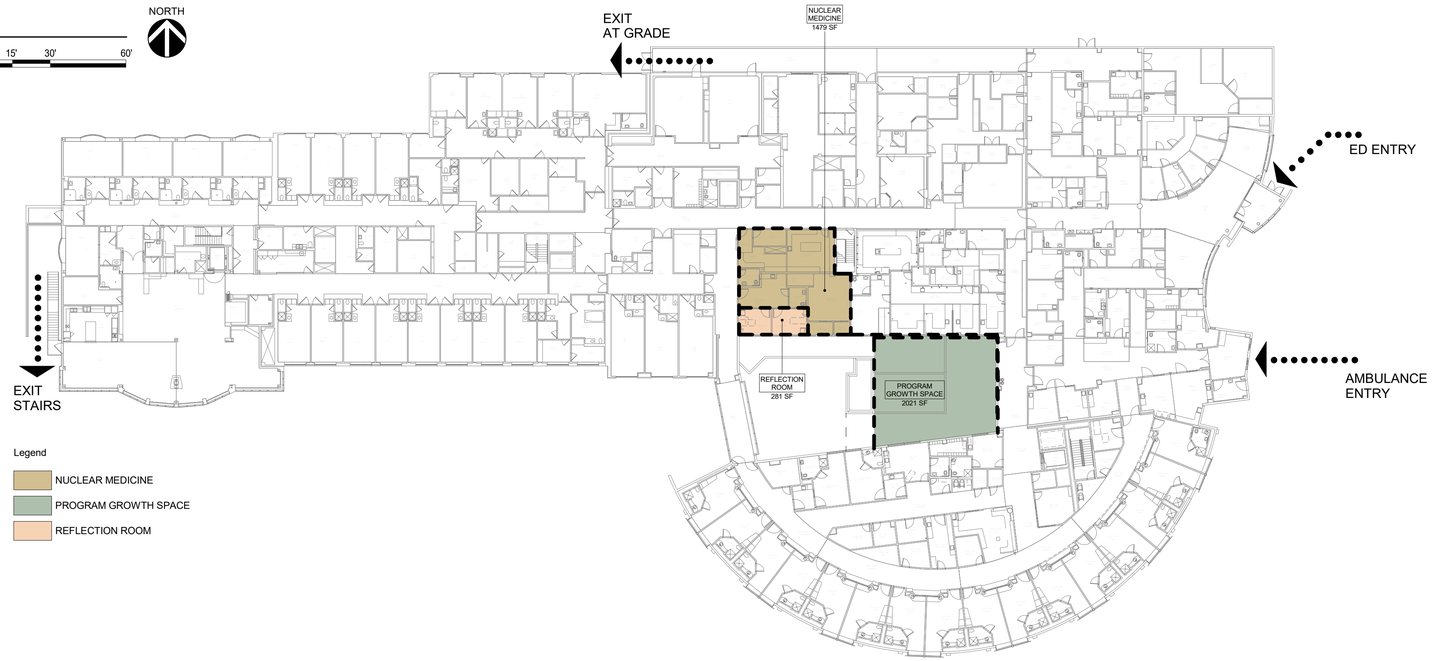
LEGEND

HEALTHCARE SUITE

3 HEALTHCARE SUITE

1/8" = 1'-0"

0 4' 8' 16'



2 LEVEL 2 - HEALTHCARE SPACE

1" = 30'-0"

NORTH

0 5' 15' 30' 60'

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South Peninsula Hospital

Phase 3 Options

Facility Assessment and Phased Renovation

2.1 South Peninsula Hospital Project Mechanical Recommendations

November 1, 2024

Prepared by:

Randall S. Williams PE

RESPEC

2.2 Executive Summary

Items listed below are thoughts on some projects that could be included in a bond initiative which would help on the long-term reliability and operations at this facility. Many of these would also reduce operating and maintenance costs.

2.3 Project Recommendation Options

Project Scopes

Phase 01:

Condition Survey Priorities:

- M1 Steam Valve Leaking
- M2 Condensate Valve Leaking
- M3 Condensate Trap Failure
- M6 CRU-1 (A-9) Leak and Damage
- M8 Pump-2A/B Cavitation
  - P-2A HW FOR EAST EXPANSION T.U.
  - P-2B HW FOR EAST EXPANSION T.U.
- M19 LTC Heating Piping failing (**design project awarded but not funded**)
  - P-1:P-40 VARIOUS UNIT TERMINAL PUMPS
  - P-41A LTC MAIN LOOP PUMPS
  - P-41B LTC MAIN LOOP PUMPS
- M20 Old elevator pit / machine room not ventilated
- M21 Showers in LTC have poor temperature control
- M23 Energy issues: constant volume air; temperature reset schedules;

Steam load reduction + Deferred maintenance:

- Domestic Hot Water Generation conversion to gas instantaneous (**already designed**)
  - T-1 HOT WATER GENERATOR
  - IHWG-1 STEAM HW GENERATOR
  - HWG-1 HOT WATER GENERATOR
  - HWCP-1 DHW CIRCULATOR
  - HWCP-2 HIGH TEMP DHW-CIRC

SPH & Condition Survey Deferred Maintenance Highest Priorities:

Steam System:

- DA Standby/Temporary DeAeration System
- BDS-1 BLOWDOWN SEPARATOR
- CV-1A U-TUBE HEAT EXCHANGER
- CV-1B U-TUBE HEAT EXCHANGER
- BCS-1 BLOWDOWN COOLING SUMP
- A-6 DUPLEX CONDENSATE RECOVERY
- A-7 DUPLEX CONDENSATE RECOVERY

- A-8 DUPLEX CONDENSATE RECOVERY
- HU-9 HUMIDIFIER
- HU-10 HUMIDIFIER
- HU-17 HUMIDIFIER

Hydronic Heating System:

- AS-1 AIR SEPARATOR
- A-1 MAIN HW PUMP
- A-2 MAIN HW PUMP STANDBY
- HC-4 HEATING COIL

Phase 02:

Central Plant:

- Condensing boiler plant – space for heating entire campus; partially populated
  - Backfeed existing boiler room
  - Plan interface with low-temperature loop
- Space for REDUCED LOAD steam boilers – relocate existing boiler(s)
  - Or consider converting existing steam humidifiers to point of use
- Chiller plant / dry coolers, or space for plant & piping
  - Plan interface with low-temperature loop
  - Plan eventual replacement of DX cooling (AHUs) & existing chiller at AC-2 (ORs)
- Low-temp glycol loop (for VRF & IT CRACs & heat recovery interconnections)
- Extend infrastructure within reach of existing building for renovations

Phase 03:

Generic "Domino" renovation remodel for non-I-Occupancy spaces:

- Replace local HVAC/AHU with VRF/DOAS & heat pumps
- Connect Heat Pumps to low-temperature glycol loop
- Add CRACs to local IT rooms & connect to low-temperature loop

Potential order of Remodels / AHU replacement:

1. Infill Core (Facilities): combine with remodel of Kitchen & NucMed? Provide new VRF/DOAS to replace AHU-8? Consider new mech room for heat pumps?
2. Shell Space: Infusion(/Pharmacy?) & Admin (partial AHU-3 to new VRF/DOAS? Need new mech room)
3. AHU-5 (Admin becomes SPD + ProgramX)
4. AHU-1 & 4 (LTC becomes OR)
5. AHU-8 & 9 (OR becomes Imaging)
6. AHU-7 & 10 (Imaging becomes ProgramX)
7. AHU-2 (Imaging, ER, Entry)
8. AHU-3 (Acute Care)

a. Capital projects

The hospital is at a bit of a crossroads given the age and condition of much of the HVAC equipment. Repair and replacement needs are widespread; but just replacing the equipment will not lead to energy savings. Significant reduction in energy consumption is only realistic if major changes are made to the systems and strategies currently deployed in the hospital. Power distribution equipment is generally quite old as well. Finding components to work in this aging equipment is becoming increasingly more difficult each year. Some larger projects to address infrastructure shortcomings are listed below.

Recommended Measure Summary

Potential Capital Recommendations	Modified System	Impact on Occupant Comfort or IEQ	Other Non-Energy Impacts	Cost	Savings Impact	Typical ROI	Priority
Consolidate Cooling for IT and Server Rooms and Capture Waste Heat for re-use	CRACs, DHW,	Address overheated IT spaces	Improve IT eq't service life	High	Med	Med	Med
Replace VAV- and CV-reheat HVAC in non-clinical areas with Variable Refrigerant Flow Fan Coils and water-cooled heat pump (or water-source heat pump loop) with Dedicated Outdoor Air Supply. Add Dry Coolers for heat rejection. Add dedicated low temperature condensing water boilers for heat source.	HVAC	Adds Cooling capability	-	High	Med	Med	Med
Convert Domestic Hot Water Heaters from storage-type to instantaneous (reduces steam load)	Water Heaters	-	Reduce risk of Legionella	Med	Med	Low	Med
Replace Steam Heating Boilers with Condensing Water. Reduce Steam Plant size. Reset heating-water supply temperature. Consider relocating plant.	Boilers, Heating	Addresses overheating in ER	-	High	Med	Low	Med
Add cooling to AHUs not converted to VRF	HVAC	Addresses overheating in Imaging and others	-	Med	N/A	None	

Recommended Measure Summary							
Potential Capital Recommendations	**Modified System**	**Impact on Occupant Comfort or IEQ**	**Other Non-Energy Impacts**	**Cost**	**Savings Impact**	**Typical ROI**	**Priority**
Add energy recovery loop to interconnect VRF systems with potential loads	HVAC	-	-	Med	Med	Low	

b. Additional Detail

1. Consolidate Cooling for IT and Server Rooms and Capture Waste Heat for re-use.
2. Replace VAV- and CV-reheat HVAC in non-clinical areas with Variable Refrigerant Flow Fan Coils and water-cooled heat pump (or water-source heat pump loop) with Dedicated Outdoor Air Supply. Add Dry Coolers for heat rejection. Add dedicated low temperature condensing water boilers for heat source.
3. Convert Domestic Hot Water Heaters from storage-type to instantaneous (reduces steam load)
4. Replace Steam Heating Boilers with Condensing Water. Reduce Steam Plant size. Reset heating-water supply temperature. Consider relocating plant.
5. Add cooling to AHUs not converted to VRF
6. Add energy recovery loop to interconnect VRF systems with potential loads

2.4 South Peninsula Hospital Electrical Recommendations

November 1, 2024

Prepared by:

Brian Hayden PE

RESPEC

2.5 Executive Summary

Items listed below are thoughts on projects that could be included in a bond initiative which would help on the long-term reliability and operations at this facility. Many of these would also reduce operating and maintenance costs.

2.6. Project Recommendation Options

Package 01:

Condition Survey Priorities:

- E1 Generator Annunciator
- E10 Loads and equipment on the incorrect branch of power distribution system
- L8 Manually controlled egress lighting
- L1 Fixtures with bad ballasts
- L2 Broken Light Switch
- L3 Failed Lamps

Steam load reduction:

- Electrical support (already designed)

SPH & Condition Survey Deferred Maintenance Highest Priorities:

- Electrical support for mechanical changes

Package 02:

Central Plant:

- Create generator building
- Replace power service and generators
    - 2500A, 480V HEA service with electronic breakers
    - 3 @ 750kW diesel generators (N+1 configuration) with fuel tank sized to support 72 hours of fuel use at full loading of generators
    - 2000A, 480V generator distribution panel with electronic breakers
    - 4 ATS to 4 distribution switchboards (1 life safety, 1 critical, 1 equipment, and 1 MRI)
        - LS 400A, 480V
        - CR 1600A, 480V
        - EQ 1600A, 480V
        - MRI 400A, 480V
- Refeed existing main electrical room loads while freeing up as much space as possible in existing main electrical/generator areas
    - Plan to route underground in GRC, routing around front of shelled space, into courtyard and splicing to existing
    - Inside the SPH facility bus duct could be used to save physical space above the ceilings
- Electrical support for mechanical changes

Addresses

- E2 Generator Age
- E3 Generator Room Clearance
- E4 Age of Electrical Switchgear (most)
- E5 Age of Electrical Panels (some)
- E8 Clearance in Main Electrical room
- E1 Generator Annunciator (updated)

Package 03:

Generic "Domino" renovation remodel for non-I-Occupancy spaces:

- Create local and consolidated electrical rooms in areas remodeled
- Create local and consolidated telecom rooms in areas remodeled
- Electrical support for mechanical changes
- Medical Office Building would get dedicated generator and HEA service

- Provide 480V infrastructure locally in all areas of SPH to support remodels and equipment changes
    - Provide 480V life safety feeder to 225A panel on plan west side of SPH
    - Provide 480V critical feeder to 1200A switchboard on plan west side of SPH
    - Provide 480V equipment feeder to 1200A switchboard on plan west side of SPH
    - Provide 480V normal feeder to 800A switchboard on plan west side of SPH
    - Inside the SPH facility bus duct could be used to save physical space above the ceilings
- Provide life safety, critical, equipment, and normal power in all areas of SPH
    - Build out a large electrical room near west side of SPH for 480V, 208V, transformers, and equipment
    - Build out a large electrical room near Shelled space of SPH for 480V, 208V, transformers, and equipment
    - Inside the SPH facility bus duct could be used to save physical space above the ceilings
- Provide telecom rooms and pathways between per BISCI standards to support all areas of SPH
    - Provide new 11'x12' telecom room near plan west side of SPH.
    - Provide new telecom room upstairs to reduce cabling running to lower telecom rooms.
    - Provide at least 2 @ 3" conduit pathways between telecom rooms so telecom rooms can be connected over fiber optic cabling.
- Ensure the Life Safety Branch of the power distribution system has correct loads on it (what should be and what should not be) per NEC Art 517.
    - Shift items off that are not permitted by NEC such as dock lift.
    - Ensure items on life safety branch are compliant with limitations of NEC permitted and required loads.

- Coordination Study
    - Design and run calculations for a coordination study on the existing SPH power distribution system
    - This would identify connections that are not coordinated and make sure changes and additions are coordinated and code compliant.
    - Report could provide adjustments, replacements, or system changes which would allow for system coordination.
    - This would likely replace thermal magnetic breakers with electronic breakers and or fuses

Addresses

- E9 Mislabeled and inconsistent labels for equipment and breakers
- E12 Lack of telecom rooms for full SPH coverage
- E5 Age of Electrical Panels
- E6 Age of Electrical Motor Control Centers
- E7 Age of Electrical Transformers
- E11 Power capacity limitations at west and central areas
- E13 Lack of pathways between telecom rooms
- E14 Lack of cable tray through SPH halls
- L7 Lighting fed from Life Safety branch distribution
- L4 Inconsistent Egress Signage
- L5 Inefficient Light Source(s)
- L6 Elevator cab lighting power source

a. Capital projects

The hospital is at a bit of a crossroads given the age and condition of much of the HVAC equipment. Repair and replacement needs are widespread; but just replacing the equipment will not lead to energy savings. Significant reduction in energy consumption is only realistic if major changes are made to the systems and strategies currently deployed in the hospital. Power distribution equipment is generally quite old as well. Finding components to work in this aging equipment is becoming increasingly more difficult each year. Some larger projects to address infrastructure shortcomings are listed below.

Recommended Measure Summary							
Potential Capital Recommendations	**Modified System**	**Impact on Occupant Comfort or IEQ**	**Other Non-Energy Impacts**	**Cost**	**Savings Impact**	**Typical ROI**	**Priority**
Replace fixtures with LED lamps with fixtures with an integral LED source	Lighting	_	Improved lighting and controls	Med	Med	Med	Low

Recommended Measure Summary

Potential Capital Recommendations	Modified System	Impact on Occupant Comfort or IEQ	Other Non-Energy Impacts	Cost	Savings Impact	Typical ROI	Priority
Replace power service and generators in new building or room and backfeed existing equipment	Power (EES)	-	Free up feeders through ceiling spaces; Compliance, Opportunity for Increased Redundancy	High	-	-	High
Provide 480V infrastructure locally in all areas of SPH to support remodels and equipment changes	Power	-	Saves costs in future remodels and equipment changes		-	-	Med
Provide life safety, critical, equipment, and normal power in all areas of SPH	Power (EES)	-	Saves costs in future remodels and equipment changes		-	-	Med
Provide telecom rooms and pathways between per BISCI standards to support all areas of SPH	Communication, Security, NC, IC	-	Saves costs in future remodels and equipment changes				Med
Ensure the Life Safety Branch of the power distribution system has correct loads on it (what should be and what should not be) per NEC Art 517	Power (EES)	-	Compliance, Reduce risk of overloading life safety branch				High
Coordination Study	Power (EES)	-	Compliance, Reduce risk of major hospital power outage	Med			High

b. Additional Detail

7. Replace fixtures with LED lamps with fixtures with an integral LED source
    a. Assume 20-30% additional savings per fixture if replaced with integral LED array instead of retrofit LED lamps
    b. Assume $500 per fixture replaced (installed)
8. Replace power service and generators in new building and backfeed existing equipment
    a. 2500A, 480V HEA service with electronic breakers
    b. 3 @ 750kW diesel generators (N+1 configuration) with fuel tank sized to support 72 hours of fuel use at full loading of generators
    c. 2000A, 480V generator distribution panel with electronic breakers
    d. 4 ATS to 4 distribution switchboards (1 life safety, 1 critical, 1 equipment, and 1 MRI)
        i. LS 400A, 480V
        ii. CR 1600A, 480V
        iii. EQ 1600A, 480V
        iv. MRI 400A, 480V
    e. Underground feeders in GRC from building to backfeed connection points.
    f. Ideally would reduce and remove some of the items in the main elec/generator areas
    g. Inside the SPH facility bus duct could be used to save physical space above the ceilings
9. Provide 480V infrastructure locally in all areas of SPH to support remodels and equipment changes
    a. Provide 480V life safety feeder to 225A panel on plan west side of SPH
    b. Provide 480V critical feeder to 1200A switchboard on plan west side of SPH
    c. Provide 480V equipment feeder to 1200A switchboard on plan west side of SPH
    d. Provide 480V normal feeder to 800A switchboard on plan west side of SPH
    e. Inside the SPH facility bus duct could be used to save physical space above the ceilings
10. Provide life safety, critical, equipment, and normal power in all areas of SPH
    a. Build out a large electrical room near west side of SPH for 480V, 208V, transformers, and equipment
    b. Build out a large electrical room near Shelled space of SPH for 480V, 208V, transformers, and equipment
    c. Inside the SPH facility bus duct could be used to save physical space above the ceilings
11. Provide telecom rooms and pathways between per BISCI standards to support all areas of SPH
    a. Provide new 11’x12’ telecom room near plan west side of SPH.
    b. Provide new telecom room upstairs to reduce cabling running to lower telecom rooms.
    c. Provide at least 2 @ 3” conduit pathways between telecom rooms so telecom rooms can be connected over fiber optic cabling.
12. Ensure the Life Safety Branch of the power distribution system has correct loads on it (what should be and what should not be) per NEC Art 517.
    a. Shift items off that are not permitted by NEC such as dock lift.
    b. Ensure items on life safety branch are compliant with limitations of NEC permitted and required loads.

13. Coordination Study
    a. Design and run calculations for a coordination study on the existing SPH power distribution system
    b. This would identify connections that are not coordinated.
    c. Report could provide adjustments, replacements, or system changes allowing system coordination.
    d. This would likely replace thermal magnetic breakers with electronic breakers and or fuses

3. Condition Surveys

A. Overview

South Peninsula Hospital

Programs: The hospital departments are identified in the Current State Drawings, which represent today's department adjacencies and programs that are in the Hospital main building. (See Appendix A)

Deficiencies include but are not limited to the following: Adequate parking, adjacent space near any department for future growth, site wayfinding, infrastructure deficiencies such as plumbing leaks and aging mechanical systems.

Details:

Address: 4300 Bartlett St, Homer, AK 99603

106225 sqft

Exterior Photos

SPH Existing Façade@ Main Entrance

SPH Existing Façade@ 2007 Hospital Addition

B. Hospital Priorities

Item	Priority
Multiple areas without Cooling	1
Piping System from 1999 LTC served with single supply and return - material is failing – all joints leak (from boiler room to LTC)	2
1999 System is failing	3
Steam system has a condensate leaking on the floor, no back up as it needs to be shut down to fix	4
Numerous steam leaks around building	5
Exhaust Fumes from Helipad still entering Imaging department thru air intake, need to add carbon filters to that system in crawl space	6
Pit and Machine Room Doesn't have ventilation	7
Circ Pumps 3A and B isolation valve broken and it can't be used, gauges in the wring place - might be taken care of in LTC.	8
COMM Rooms / Closets need cooling	9
The Generator Annunciator can't alarm or report or alert (Generator Compliance) – needs to be brought up to the current code	10
Power distribution gear is older, and there may not be parts replacement	11
Labeling is off on transfer switches, critical branches etc.	12
Power infrastructure distribution	13
COMM Rooms - not large enough	14
No Conduit and cable try between rooms	15
Older lamps and fixtures	16
Fire Stopping missing throughout	17
LTC Water in each room unit has poor control of temperature	18
Departments lacking space – i.e.: LTC – Wheelchair washer – where to put it	19
PT grown a lot	20
Bio med is west mechanical room closet	21

C. Conditions Assessment Architectural:

The South Peninsula Hospital was constructed in 1977, had a major addition added in 2007and has undergone several remodels in between.

The Hospital is an I-2 occupancy.

Below are general conditions statements highlighted from the facility assessment.

Exterior: The exterior siding consists of both metal panels and painted CMU. The older part of the building, with painted CMU siding, has water appearing in the cracks of the CMU block wall. There also appears to be some sort of moss and algae growing at the foundation of the building in the cracks. There is water damage on the underside of the canopy. The metal siding is generally in good condition. However, there are some damaged panels, rusted flashing, and unfinished wood panels at the exterior of the acute care.

Roofs: The roofing is made of single-ply EPDM. At the seismic joint of the addition of Long-Term Care and several other locations, the EPDM roof membrane has pockets of frozen water. There are also areas of poor drainage and water ponding.

Floors: The floors are a mixture of carpet, vinyl composite tile, luxury vinyl tile and planks, sheet vinyl, and ceramic tile. The flooring is generally in good condition with areas of minor cosmetic damage.

Ceilings: The ceilings are acoustic ceiling tile, painted gypsum board, or a decorative wood ceiling. Some water damage was noted in areas that could indicate signs of leaks.

Doors: The exterior doors are painted hollow metal doors and frames or part of an aluminum storefront system. Some of the exterior metal doors have become rusted. The interior doors have a p-lam finish with painted hollow metal frames, with some service doors being painted hollow metal.

Casework: P-lam finished casework with plastic laminate countertops. The casework is generally in good condition with areas of minor cosmetic damage.

Other items: The uses of the building have outgrown the size of the building. There is a general lack of storage throughout the facility and several departments have grown substantially without space to expand.

Exiting: Egress is generally good, except for an egress door that is locked at the first floor of a stairwell.

Accessibility: The facility needs some upgrades to meet the current ADA requirements. Some toilet rooms are designated as ADA but do not meet the current ADA space requirements. Many of the signage and counter heights throughout the facility do not meet the ADA standards.

Deficiency ID	Title	Priority Code	Deficiency Code
A7	Egress from Stairs	0	2
A1	Nurse Station Acoustics	1	1
A2	Exterior windows in compounding pharmacy	1	1
A3	Operating room doors not secure from back side corridor.	1	1
A4	Storage Under the Stairs	1	2
A5	Penetrations at Fire Assemblies	1	2
A6	Rated Doors/Frames	1	2
A17	ADA Toilet Rooms	1	7
A18	Door Signage	1	7
A19	ADA Counter Heights	1	7
A20	Protrusions into Walkway	1	7
A32	Exterior Wood Panels at Acute Care	1	10
A39	Equipment not Properly Fastened to Structure	1	10
A43	Exposed Pipe in Pharmacy	1	10
A44	Water Damage at Ceilings	1	10
A45	Leak in Surgery Dept.	1	10
A52	Elevator	1	10
A53	Water Under Roof Membrane	1	17
A55	Moss Growing on the Roof	1	17
A57	Roof Parapet Damage	1	17
A21	Exterior CMU	2	10
A22	Exterior Siding Finish	2	10
A23	Water Issues at Exterior	2	10
A24	Exterior Base Damage	2	10
A25	Damaged Metal Siding	2	10
A26	Rust on Exterior Door	2	10
A27	Water Damage on Underside of Canopy	2	10
A28	Exterior Siding Panel not Attached to the Building	2	10
A29	Exterior Siding Base Damage	2	10
A30	Compromised Base Flashing	2	10
A31	Damaged/Unattached Siding Panels	2	10
A33	Added A/C Units	2	10
A35	Damage at Window Sills	2	10
A36	Damage Above Windows	2	10
A51	Door Frame Finish and Gasket Damage	2	10
A54	Rusted Roof Flashing	2	17
A56	Water Collecting at Roof Drains	2	17
A58	Uncomfortable Workstations	2	5
A9	Lab Space	3	6
A10	Acute Care Space	3	6
A11	Exits from Psych Spaces	3	6
A34	Wall Damage at Surgery Reception	3	10
A37	Damaged Finish at Patient Room Walls	3	10
A38	Damage to Wall Finish	3	10
A40	Severe Cracking in the Concrete Wall Where Pipes are Routed	3	10
A8	Lack of Storage	4	6
A13	Clean Linen Space	4	6
A15	Neurology Space	4	6
A16	Patient Room Counter	4	6
A41	Damage to Wood Base	4	10
A42	Floor Damage from Door	4	10
A49	Wear on Rail and Stair Finish	4	10
A12	E.D. Break Room	5	6
A14	Kitchen Counter Space at Sink	5	6
A46	ACT Grid Damage	5	10
A47	Missing Wall Base	5	10
A48	Damaged Hardware/Missing Casework Doors	5	10
A50	Missing Metal Door Trim	5	10
A59	Acute Care Flooring	5	99
A60	Break Area for Kitchen Employees	5	99
A61	Lab Casework	5	99
A62	Bathing Room Lift	5	99

Legend			
	Priority Year Code		Deficiency Code
0	Emergency or address soon	1	Patient Care
1	Address within 12 months	2	Life Safety Compliance
2	Address within 2 years	3	General Safety
3	Address within 3 years	4	Environmental Compliance
4	Address within 4 years	5	Program Deficiencies
5	Address within 5 years	6	Unmet Supportable Space Needs
		7	Handicapped Compliance
		8	Energy Conservation
		9	Plant Management
		10-16	Architectural Maintenance & Repair
		17	Structural Maintenance & Repair
		18	Mechanical Maintenance & Repair
		19	Electrical Maintenance & Repair
		20	Utilties Maintenance & Repair
		21	Grounds Maintenance & Repair
		22	Painting Maintenance & Repair
		23	Roof Maintenance & Repair
		24	Seismic Mitigation
		25	Other

A1	Nurse Station Acoustics

Architectural

Observed Deficiency and Proposed Correction

Priority Code:	1	Deficiency Code:	1

Room Number	Room Name	SQFT of Area (if Applicable)	

Department or Area

Acute and Emergency Department Nurse Stations

Priority Year

Narrative Description of Deficiency / Problem:

The acoustics at the nurse stations are a HIPAA concern. Patients down the hall can hear the nurses talking at the nurse station.

Narrative Description of Correction / Resolution:

Install acoustics at the nurse station to reduce sound travelling down the hall.

A2	**Exterior windows in compounding pharmacy**

Architectural

Observed Deficiency and Proposed Correction

Priority Code:	**1**	**Deficiency Code:**	**1**

Room Number	**Room Name**	**SQFT of Area (if Applicable)**	

Department or Area

Pharmacy

Priority Year

Narrative Description of Deficiency / Problem:

Exterior windows in compounding pharmacy

Narrative Description of Correction / Resolution:

Remove windows in the compounding pharmacy and match adjacent exterior wall finish interior and exterior.

Remarks

A3 **Operating room doors not secure from back side corridor.**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **1** **Deficiency Code:** **1**

Room Number	Room Name	SQFT of Area (if Applicable)	

Department or Area

Priority Year

Narrative Description of Deficiency / Problem:

Operating room doors not secure from back side corridor.

Narrative Description of Correction / Resolution:

Add a wall and secure door at the end of the corridor to keep patients from entering the back corridor.

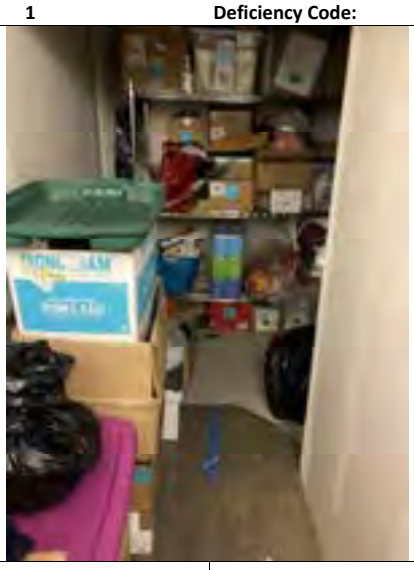
Remarks

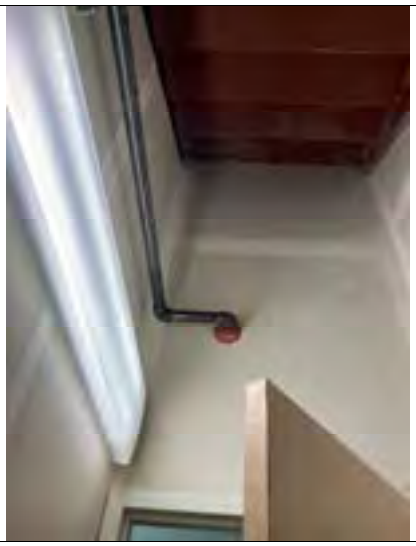
A4	Storage Under the Stairs

Architectural

Observed Deficiency and Proposed Correction

Priority Code: 1 **Deficiency Code:** 2





Room Number	Room Name	SQFT of Area (if Applicable)	

Department or Area

Priority Year

Narrative Description of Deficiency / Problem:

Storage under stairs to be separated from stairs with a fire rating. The door at this location is not rated.

Narrative Description of Correction / Resolution:

Verify that the walls and ceiling of the storage are separted from the stairs with the appropriate fire rated assembly.

Penetrations through fire rated assembly to be sealed per code. Doors and frames to have the appropriate fire rating.

Remarks

A5	Penetrations at Fire Assemblies

Architectural

Observed Deficiency and Proposed Correction

Priority Code:	1	Deficiency Code:	2

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Mechanical Room

Priority Year

Narrative Description of Deficiency / Problem:

Penetrations only partially fireproofed/sealed. May require additional sealing. Concrete cracking.

Narrative Description of Correction / Resolution:

Seal all penetrations through fire assemblies.

Remarks

A6	Rated Doors/Frames

Architectural

Observed Deficiency and Proposed Correction

Priority Code:	1	Deficiency Code: A	2

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Priority Year

Narrative Description of Deficiency / Problem:

Doors and frames in rated partitions to be rated and have appropriate labeling. Labels should not be painted over.

Narrative Description of Correction / Resolution:

Provide rated doors and frames where required. Doors and frames to have appropriate labels.

Remarks

A7	Egress from Stairs

Architectural

Observed Deficiency and Proposed Correction

Priority Code:	0	Deficiency Code: A	2

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Paths of Egress

Priority Year

Narrative Description of Deficiency / Problem:

Egress stair is locked at first floor.

Narrative Description of Correction / Resolution:

Allow egress on the first floor from the stairwell in egress paths.

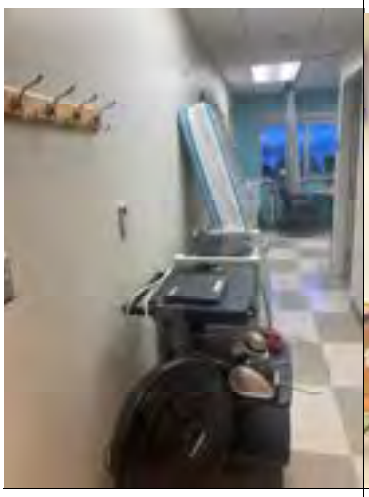
Remarks

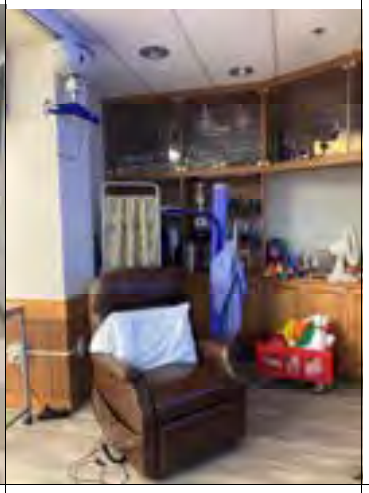
A8	Lack of Storage

Architectural

Observed Deficiency and Proposed Correction

Priority Code:	4	Deficiency Code: A	6





Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Priority Year

Narrative Description of Deficiency / Problem:

Lack of storage throughout facility. It was noted in the Acute Care, Emergency Department (storing items from Radiology and E.S. in corridor), Imaging, Surgery (storage in corridor behind operating rooms), Neurology, Long Term (Activities) Registration is low on space.

Narrative Description of Correction / Resolution:

Consider expansion to accommodate needs of these departments.

Remarks

A9 **Lab Space**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **3** **Deficiency Code: A** **6**

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Lab

Priority Year

Narrative Description of Deficiency / Problem:

Lab has grown considerably and is low on space. They have to take bench space for workstations.

Narrative Description of Correction / Resolution:

Consider expansion to accommodate needs of this departments.

Remarks

A10	Acute Care Space

Architectural

Observed Deficiency and Proposed Correction

Priority Code:	3	Deficiency Code:	6

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Acute Care

Priority Year

Narrative Description of Deficiency / Problem:

Acute Care - Need space for new staff members

Narrative Description of Correction / Resolution:

Remarks

A11	Exits from Psych Spaces

Architectural

Observed Deficiency and Proposed Correction

Priority Code:	3	Deficiency Code:	6

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Emergency Department

Priority Year

Narrative Description of Deficiency / Problem:

Psych space shoud have two exits

Narrative Description of Correction / Resolution:

Add an additional exit out of space for employee safety.

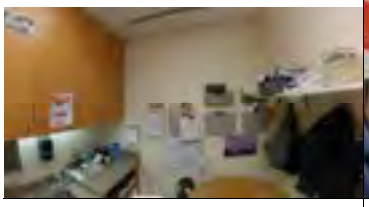
Remarks

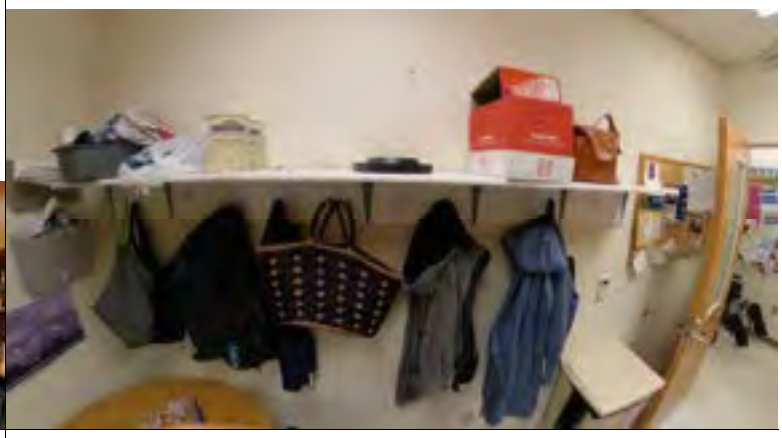
A12 **E.D. Break Room**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **5** **Deficiency Code:** **6**





Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Emergency Department

Priority Year

Narrative Description of Deficiency / Problem:

Break room isn't large enough and is long and narrow. A room with a better layout would be more usable and a larger fridge.

Employees need a place to put their personal items.

Narrative Description of Correction / Resolution:

Remarks

A13 **Clean Linen Space**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **4** **Deficiency Code:** **6**

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Clean Linen

Priority Year

Narrative Description of Deficiency / Problem:

Clean Linen needs more space during the winter and for future.

Narrative Description of Correction / Resolution:

Consider expanding with any future expansions.

Remarks

A14 **Kitchen Counter Space at Sink**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **5** **Deficiency Code:** **6**

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Kitchen

Priority Year

Narrative Description of Deficiency / Problem:

Kitchen needs additional counter space to the left of the sink.

Narrative Description of Correction / Resolution:

Remodel of space to allow additional counter space where needed.

Remarks

A15	Neurology Space

Architectural

Observed Deficiency and Proposed Correction

Priority Code:	4	Deficiency Code:	6

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Neurology

Priority Year

Narrative Description of Deficiency / Problem:

Neurology has expanded beyond space. They currently share the break room with an office. They have future plans for expansion.

Narrative Description of Correction / Resolution:

Consider expanding with any future expansions.

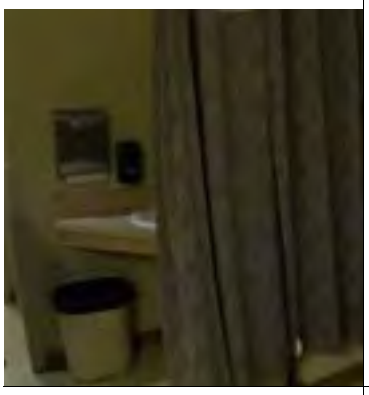
Remarks

A16	Patient Room Counter

Architectural

Observed Deficiency and Proposed Correction

Priority Code:	4	Deficiency Code:	6



Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Long Term Care

Priority Year

Narrative Description of Deficiency / Problem:

Patient rooms need more counter space and storage by the sink for patient's personal items.

Narrative Description of Correction / Resolution:

Provide a larger counter in the corner as space provides, or consider this for future expansions

Remarks

A17	ADA Toilet Rooms

Architectural

Observed Deficiency and Proposed Correction

Priority Code:	1	Deficiency Code:	7

Room Number	Room Name	SQFT of Area (if Applicable)	

Department or Area

Priority Year

Narrative Description of Deficiency / Problem:

ADA toilet rooms to meet the requirements for water closet clearances.

Narrative Description of Correction / Resolution:

Relocate any items within the water closet clearance in ADA toilet rooms.

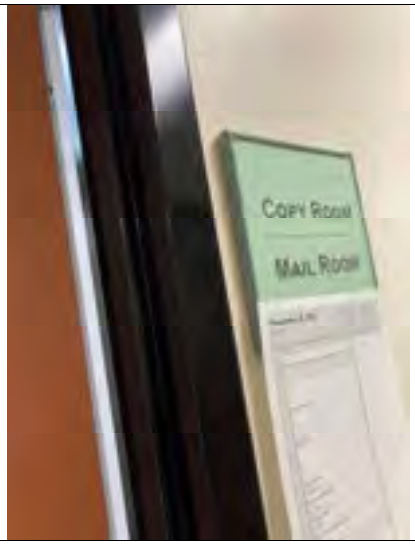
Remarks

A18	Door Signage

Architectural

Observed Deficiency and Proposed Correction

Priority Code: 1 **Deficiency Code: A** 7



Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area
Interior Corridor
Priority Year

Narrative Description of Deficiency / Problem:

Signage in the hospital is very irregular and inconsistent. Many rooms have no signage, some had sticker labels with numbers, while some had room names only, no associated number. Signage needs tacile letters and braille.

Narrative Description of Correction / Resolution:

Provide properly designed door signage per ADA chapter 7. All signs must have visible tactile characters and braille. They should be mounted on the latch side of the doors and heights per figure 703.4.1 in chapter 7 of the ADA.

Remarks

A19	ADA Counter Heights

Architectural

Observed Deficiency and Proposed Correction

Priority Code:	1	Deficiency Code: A	7

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Priority Year

Narrative Description of Deficiency / Problem:

Counters need to have a portion that is at ADA height.

Narrative Description of Correction / Resolution:

Provide a portion of the counter surface that is 36 inches long minimum and 36 inches high maximum above the finish floor.

Remarks

2010 ADA Section 904.4.1

A20	Protrusions into Walkway

Architectural

Observed Deficiency and Proposed Correction

Priority Code:	1	Deficiency Code: A	7

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Priority Year

Narrative Description of Deficiency / Problem:

The drinking foutains are located above 27", below 80" and are projecting into the walkway more than 4".

Narrative Description of Correction / Resolution:

Add a base to the drinking fountains or recess them so they do not protrude into the walkway.

Remarks

2010 ADA 307.2

A21	Exterior CMU

Architectural

Observed Deficiency and Proposed Correction

Priority Code:	2	Deficiency Code:	10

Room Number	Room Name	SQFT of Area (if Applicable)	

Department or Area

Exterior

Priority Year

Narrative Description of Deficiency / Problem:

Peeling paint and water seepage in cracks of CMU exterior.

Narrative Description of Correction / Resolution:

Seal CMU blocks and refinish.

Remarks

A22	Exterior Siding Finish

Architectural

Observed Deficiency and Proposed Correction

Priority Code:	2	Deficiency Code:	10

Room Number	Room Name	SQFT of Area (if Applicable)	

Department or Area

Exterior

Priority Year

Narrative Description of Deficiency / Problem:

Exterior finish is worn and damaged

Narrative Description of Correction / Resolution:

Refinish exterior siding.

Remarks

A23	Water Issues at Exterior

Architectural

Observed Deficiency and Proposed Correction

Priority Code: 2 **Deficiency Code:** 10

Room Number	Room Name	SQFT of Area (if Applicable)	

Department or Area

Exterior

Priority Year

Narrative Description of Deficiency / Problem:

Water is appearing in the cracks of the CMU block wall of the exterior in the main entry of the hospital. There also appears to be some sort of moss and algae growing at the foundation of the building in the cracks. This may be contributing to water damage to this portion of the building envelope. Further investigation would be required.

Narrative Description of Correction / Resolution:

Seal CMU blocks and refinish.

Clean moss from base and add base flashing.

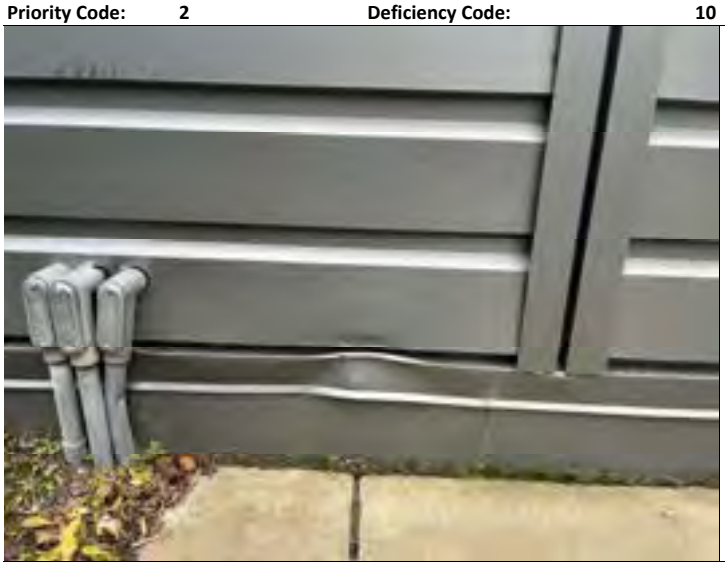
Remarks

A24	Exterior Base Damage

Architectural

Observed Deficiency and Proposed Correction

Priority Code: 2 **Deficiency Code:** 10



Room Number	Room Name	SQFT of Area (if Applicable)	

Department or Area

Exterior

Priority Year

Narrative Description of Deficiency / Problem:

Metal panel damaged at base near entry of hospital. Located in the courtyard area beside the cafeteria.
some sort of moss and algae growing at the foundation of the building in the cracks. This may be contributing to water damage
to this portion of the building envelope. Further investigation would be required.

Narrative Description of Correction / Resolution:

Replace damaged base.
Remove moss and algae from building.

Remarks

A25 **Damaged Metal Siding**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **2** **Deficiency Code: A** **10**

Picture

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Exterior

Priority Year

Narrative Description of Deficiency / Problem:

Slight dent in the metal panel exterior as well as some green algae developing at the base of the building.

Narrative Description of Correction / Resolution:

Replace damaged siding.

Remove moss and algae from building.

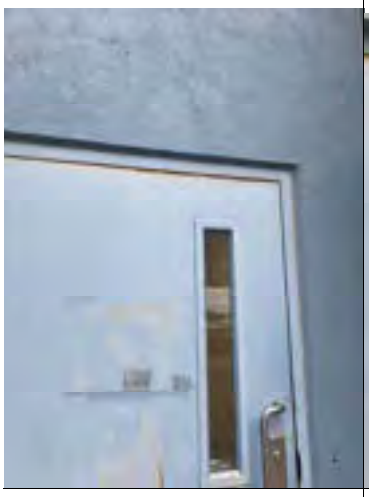
Remarks

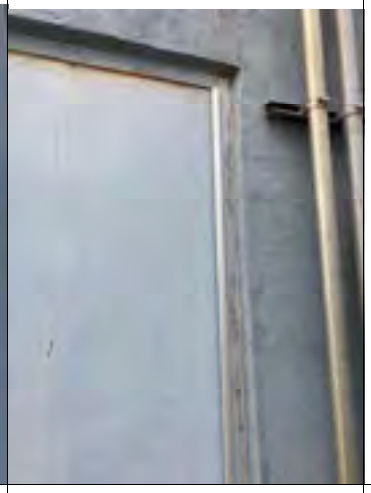
A26	Rust on Exterior Door

Architectural

Observed Deficiency and Proposed Correction

Priority Code:	2	Deficiency Code: A	10





Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Exterior

Priority Year

Narrative Description of Deficiency / Problem:

Rust on exterior door.

Narrative Description of Correction / Resolution:

Remove existing finish and refinish doors and frames as needed.

Remarks

A27	Water Damage on Underside of Canopy

Architectural

Observed Deficiency and Proposed Correction

Priority Code:	2	Deficiency Code: A	10

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Exterior

Priority Year

Narrative Description of Deficiency / Problem:

Water damage on underside of canopy.

Narrative Description of Correction / Resolution:

Determine the cause of the water. Refinish undersize of canopy.

Remarks

A28	Exterior Siding Panel not Attached to the Building

Architectural

Observed Deficiency and Proposed Correction

Priority Code:	2	Deficiency Code: A	10

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Exterior

Priority Year

Narrative Description of Deficiency / Problem:

Exterior siding panel not attached to the building.

Narrative Description of Correction / Resolution:

Remove any rust that is forming and replace panel.

Remarks

A29	Exterior Siding Base Damage

Architectural

Observed Deficiency and Proposed Correction

Priority Code:	2	Deficiency Code: A	10

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Exterior

Priority Year

Narrative Description of Deficiency / Problem:

Exterior siding base damage.

Narrative Description of Correction / Resolution:

Replace damaged siding.

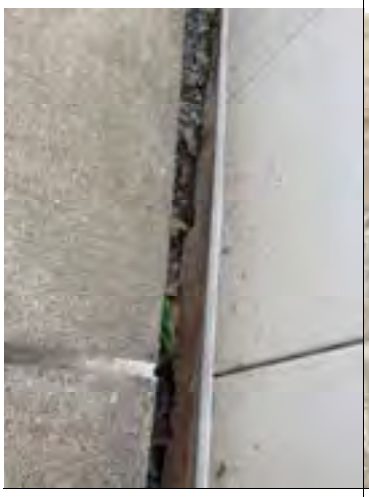
Remarks

A30 **Compromised Base Flashing**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **2** **Deficiency Code: A** **10**



Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Exterior

Priority Year

Narrative Description of Deficiency / Problem:

Rusted base flashing and openings in base materials.

Narrative Description of Correction / Resolution:

Replace damaged base flashing and seal any openings.

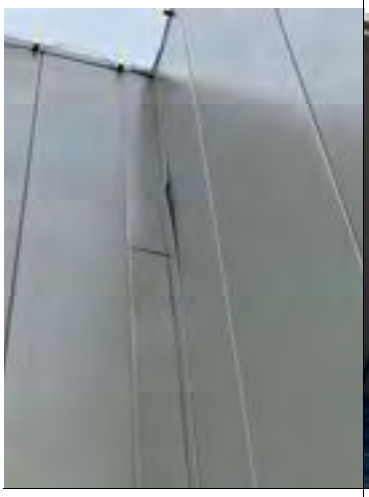
Remarks

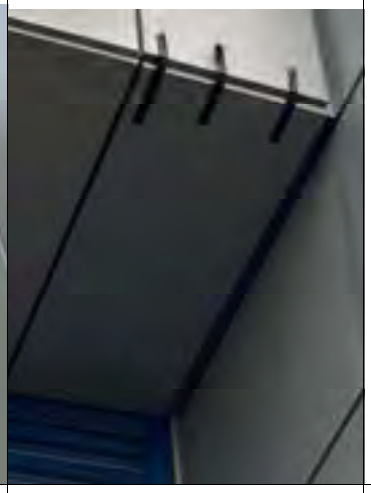
A31 **Damaged/Unattached Siding Panels**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **2** **Deficiency Code: A** **10**





Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Exterior

Priority Year

Narrative Description of Deficiency / Problem:

Damaged siding panel. Soffit panel appears to be held on by tape.

Narrative Description of Correction / Resolution:

Replace any damaged siding/panels. Securely fasten all panels to the building.

Remarks

A32 **Exterior Wood Panels at Acute Care**

Architectural

Observed Deficiency and Proposed Correction

Priority Code:	**1**	**Deficiency Code: A**	**10**

Room Number	**Room Name**	**SQFT of Area (if applicable)**	

Department or Area

Exterior

Priority Year

Narrative Description of Deficiency / Problem:

Glazing has been removed and replaced with wood at several locations at Acute Care.

Narrative Description of Correction / Resolution:

Remove wood panels and replace with glazing, seal and waterproof.

Remarks

A33 **Added A/C Units**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **2** **Deficiency Code:** **10**

Room Number	Room Name	SQFT of Area (if Applicable)	

Department or Area

Roof/Exterior

Priority Year

Narrative Description of Deficiency / Problem:

Roof AC unit added with cords piped into side exterior. Penetration appeared to be sprayfoamed.

Narrative Description of Correction / Resolution:

Coordinate air issues with mechanical. Recommend installing per mechanical design.

Properly seal all penetrations through walls/roofs.

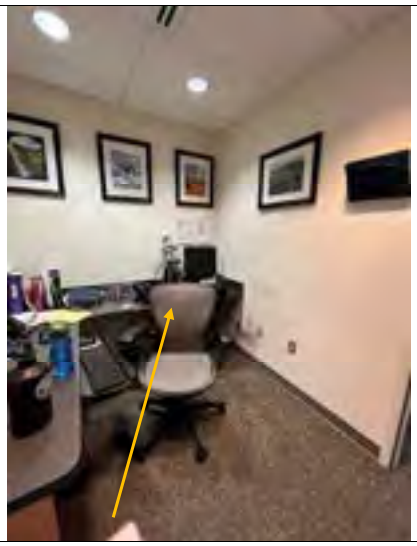
Remarks

A34 **Wall Damage at Surgery Reception**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **3** **Deficiency Code:** **10**



Room Number	Room Name	SQFT of Area (if Applicable)	
	Surgery Reception		

Department or Area

Surgery

Priority Year

Narrative Description of Deficiency / Problem:

Considerable wear and tear on wall in Surgery Check In Desk/Reception. Cause unclear.

Narrative Description of Correction / Resolution:

Patch and repaint damage to drywall. Match existing.

Remarks

A35 **Damage at Window Sills**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **2** **Deficiency Code: A** **10**

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Priority Year

Narrative Description of Deficiency / Problem:

Damage below window sill

Narrative Description of Correction / Resolution:

Patch and repaint damage to drywall. Match existing.

Remarks

A36 **Damage Above Windows**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **2** **Deficiency Code: A** **10**

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area
Cafeteria
Priority Year

Narrative Description of Deficiency / Problem:

Damage to finish above windows

Narrative Description of Correction / Resolution:

Patch and repaint damage to drywall. Match existing.

Remarks

A37 **Damaged Finish at Patient Room Walls**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **3** **Deficiency Code: A** **10**

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Priority Year

Narrative Description of Deficiency / Problem:

Damage to wall finish in patient rooms.

Narrative Description of Correction / Resolution:

Patch and repaint damage to drywall. Match existing.

Remarks

A38 **Damage to Wall Finish**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **3** **Deficiency Code: A** **10**

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Exterior

Priority Year

Narrative Description of Deficiency / Problem:

Damage to wall finish

Narrative Description of Correction / Resolution:

Patch and repaint damage to drywall. Match existing.

Remarks

A39	Equipment not Properly Fastened to Structure

Architectural

Observed Deficiency and Proposed Correction

Priority Code: 1 **Deficiency Code: A** 10

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Priority Year

Narrative Description of Deficiency / Problem:

Equipment not properly fastened to structure.

Narrative Description of Correction / Resolution:

Securely fasten to the structure and repair any damage to the gypsum board and finish.

Remarks

A40	Severe Cracking in the Concrete Wall Where Pipes are Routed

Architectural

Observed Deficiency and Proposed Correction

Priority Code: 3 **Deficiency Code: A** 10

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Mecanical room

Priority Year

Narrative Description of Deficiency / Problem:

Severe cracking in the concrete wall where pipes are routed.

Narrative Description of Correction / Resolution:

Seal cracks and finish to match adjacent.

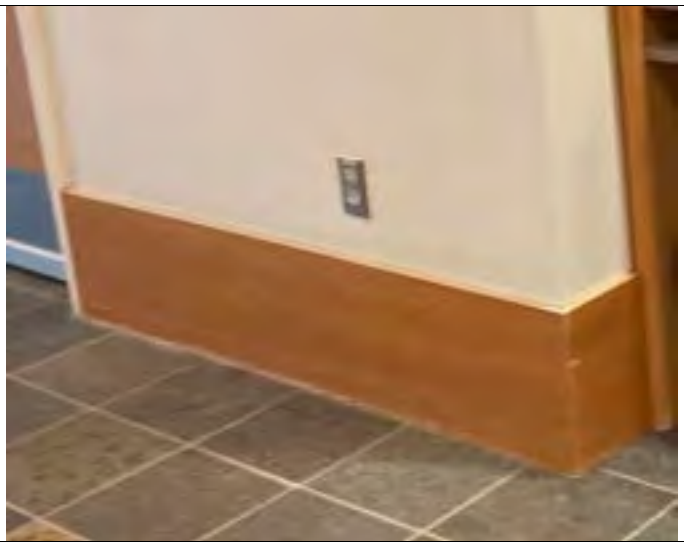
Remarks

A41 **Damage to Wood Base**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **4** **Deficiency Code: A** **10**



Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Mecanical room

Priority Year

Narrative Description of Deficiency / Problem:

12" wood base is getting beat up.

Narrative Description of Correction / Resolution:

Refinish wood base or cover with a resilient base.

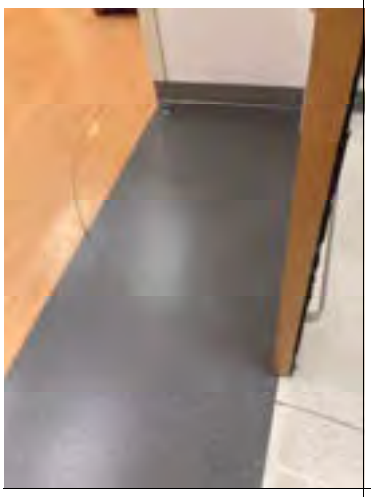
Remarks

A42	Floor Damage from Door

Architectural

Observed Deficiency and Proposed Correction

Priority Code:	4	Deficiency Code: A	10



Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Corridor

Priority Year

Narrative Description of Deficiency / Problem:

Floor damage from door.

Narrative Description of Correction / Resolution:

Remove anything from the bottom of the door that is dragging on the floor. Replace floor as needed.

Remarks

A43 **Exposed Pipe in Pharmacy**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **1** **Deficiency Code:** **10**

Room Number	Room Name	SQFT of Area (if Applicable)	
	Pharmacy		

Department or Area

Pharmacy

Priority Year

Narrative Description of Deficiency / Problem:

Exposed pipe under work station in pharmacy. Some minor cracking in flooring surrounding pipe where it penetrates the floor.

Narrative Description of Correction / Resolution:

Relocate pipe or conceal in a wall.

Remarks

A44 **Water Damage at Ceilings**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **1** **Deficiency Code:** **10**

Room Number	Room Name	SQFT of Area (if Applicable)	

Department or Area

Pharmacy Acute Care

Priority Year

Narrative Description of Deficiency / Problem:

Water damage to an ACT panel in the pharmacy. Unclear what the source/cause of the leak was,
Water spot on ACT tile located in an Acute Care patient room. This area of the hospital is lcoated on the second floor in the RIM
addition. It is unclear what caused the leak, and whether it has been resolved/addressed. Minor cosmetic damage that could
indicate a larger issue with the roof.

Narrative Description of Correction / Resolution:

Verify leaks are eliminated and replace ceiling panels

Remarks

A45 **Leak in Surgery Dept.**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **1** **Deficiency Code: A** **10**

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Surgery

Priority Year

Narrative Description of Deficiency / Problem:

Leak in surgery department.

Narrative Description of Correction / Resolution:

Verify cause of leak and repair.

Remarks

A46 **ACT Grid Damage**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **5** **Deficiency Code:** **10**

Room Number	Room Name	SQFT of Area (if Applicable)	

Department or Area

Storage Room

Priority Year

Narrative Description of Deficiency / Problem:

Located in a storage room in the addition where most of the hospital's storage is held (was intended to be patient care/rooms) portion of ACT ceiling grid is peeling out.

Narrative Description of Correction / Resolution:

Replace or repair ceiling grid as needed.

Remarks

A47 **Missing Wall Base**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **5** **Deficiency Code: A** **10**

Room Number	Room Name	SQFT of Area (if applicable)	
316	Printing / Mail Room		

Department or Area

Admin

Priority Year

Narrative Description of Deficiency / Problem:

Trim is missing behind printer in admin printing/mail room

Narrative Description of Correction / Resolution:

Install wall base to match adjacent.

Remarks

A48 **Damaged Hardware/Missing Casework Doors**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **5** **Deficiency Code:** **10**

Room Number	Room Name	SQFT of Area (if Applicable)	

Department or Area

Acute Care

Priority Year

Narrative Description of Deficiency / Problem:

Drawer pull is bent on a drawer located in an Acute Care patient room. Minor, cosmetic, and slightly functionally impaired.

Casework for medgases appear to be retrofitted to accommodate needs; magnetic latches for doors exist, however doors appear to have been removed.

Narrative Description of Correction / Resolution:

Replace damaged hardware. Replace doors as needed.

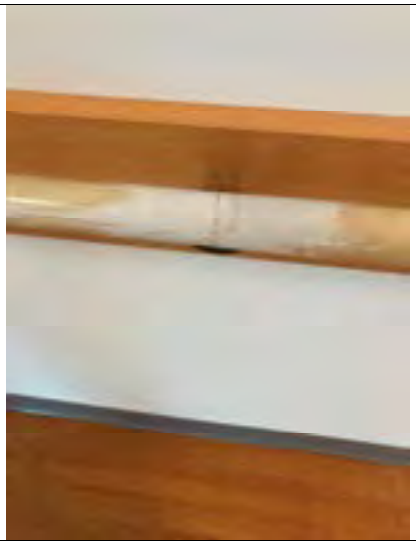
Remarks

A49 **Wear on Rail and Stair Finish**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **4** **Deficiency Code: A** **10**



Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Priority Year

Narrative Description of Deficiency / Problem:

Handrail finish has worn off in an area in the corridor.

Handrail finish has worn off in the stairwells.

Stair finish is wearing down in stairwell.

Narrative Description of Correction / Resolution:

Finish handrail to match adjacent rail finish.

Refinish stairs to match adjacent finish.

Remarks

A50 **Missing Metal Door Trim**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **5** **Deficiency Code: A** **10**

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Priority Year

Narrative Description of Deficiency / Problem:

Metal trim was removed leaving holes in door finish.

Narrative Description of Correction / Resolution:

Replace metal trim.

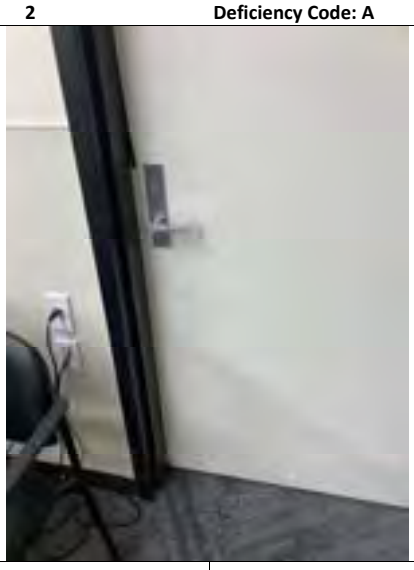
Remarks

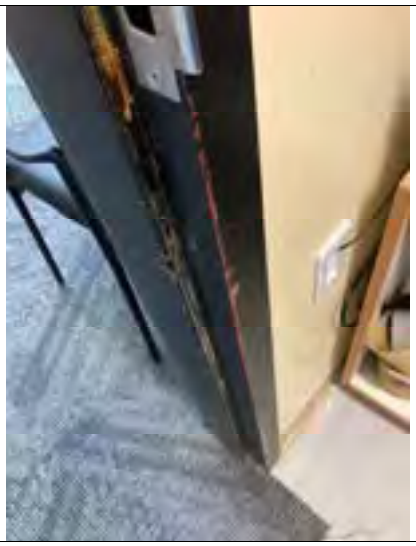
A51 **Door Frame Finish and Gasket Damage**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **2** **Deficiency Code: A** **10**





Room Number	Room Name	SQFT of Area (if applicable)	
317	Conference Room		

Department or Area

Admin

Priority Year

Narrative Description of Deficiency / Problem:

Wear and tear to the paint/finish of the door and frame. Gasket appears to be broken and coming off.

Narrative Description of Correction / Resolution:

Sand down and refinish frame and replace seal.

Remarks

A52	Elevator

Architectural

Observed Deficiency and Proposed Correction

Priority Code:	1	Deficiency Code: A	10

Room Number	Room Name	SQFT of Area (if applicable)	
317	Conference Room		

Department or Area

Admin

Priority Year

Narrative Description of Deficiency / Problem:

Elevator

Narrative Description of Correction / Resolution:

Remarks

A53 **Water Under Roof Membrane**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **1** **Deficiency Code:** **17**

Room Number	Room Name	SQFT of Area (if Applicable)	

Department or Area
Roof
Priority Year

Narrative Description of Deficiency / Problem:

Crunchy rippling occuring in EPDM roof membrane at parapet, located somewhere over LTC. May have frozen water below the roof membrane.

Narrative Description of Correction / Resolution:

Check seismic joint for leaks. Remove all water and seal properly.

Remarks

A54 **Rusted Roof Flashing**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **2** **Deficiency Code: A** **17**

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Roof

Priority Year

Narrative Description of Deficiency / Problem:

Rust on parapet cap, and roof flashing.

Narrative Description of Correction / Resolution:

Replace parapet cap and flashing and slope to shed water.

Remarks

A55 **Moss Growing on the Roof**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **1** **Deficiency Code:** **17**

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Roof

Priority Year

Narrative Description of Deficiency / Problem:

Moss growing on the roof

Narrative Description of Correction / Resolution:

General maintenance - remove all moss and debris from roof.

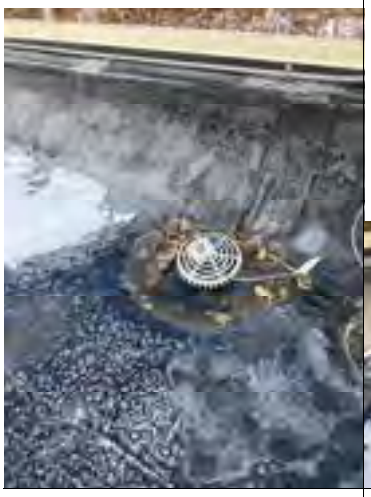
Remarks

A56 **Water Collecting at Roof Drains**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **2** **Deficiency Code: A** **17**



Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Roof

Priority Year

Narrative Description of Deficiency / Problem:

Rust on roof drains, water and debri collecting at overflow drain.

Narrative Description of Correction / Resolution:

Roof drains to be reconfigured with slopes and detailing to prevent water from pooling.

Remove rust and refinish rusted roof drains.

Remarks

A57 **Roof Parapet Damage**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **1** **Deficiency Code: A** **17**

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Roof Parapet

Priority Year

Narrative Description of Deficiency / Problem:

Parapet damage.

Narrative Description of Correction / Resolution:

Replace section of parpaet cap to match adjacent.

Remarks

A58 **Uncomfortable Workstations**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **2** **Deficiency Code:** **5**

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Nurse Stations Imaging Emergency Dept.

A16

Narrative Description of Deficiency / Problem:

Uncomfortable workstation heights.

Narrative Description of Correction / Resolution:

Suggest providing ergonomic workstations like sit-stands.

Remarks

A59 **Acute Care Flooring**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **5** **Deficiency Code:** **99**

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Acute Care

Priority Year

Narrative Description of Deficiency / Problem:

Carpet in acute care makes it difficult to wheel across and holds dirt.

Narrative Description of Correction / Resolution:

Replace carpet with resilient flooring.

Remarks

A60 **Break Area for Kitchen Employees**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **5** **Deficiency Code:** **99**

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Kitchen

Priority Year

Narrative Description of Deficiency / Problem:

Employees have no place to take a break out of customer's view.

Narrative Description of Correction / Resolution:

Suggest providing a break room for kitchen employees.

Remarks

A61 **Lab Casework**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **5** **Deficiency Code:** **99**

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Lab

Priority Year

Narrative Description of Deficiency / Problem:

Lab needs taller drawers to drop entire kits in for better workflow.

Lab needs more file drawers.

Narrative Description of Correction / Resolution:

Replace casework with taller drawers and provide additional file drawers.

Remarks

A62 **Bathing Room Lift**

Architectural

Observed Deficiency and Proposed Correction

Priority Code: **5** **Deficiency Code:** **99**

Room Number	Room Name	SQFT of Area (if applicable)	

Department or Area

Long Term Care Bathing Room

Priority Year

Narrative Description of Deficiency / Problem:

Bathing room lift is in an awkward location.

Narrative Description of Correction / Resolution:

Replace lift and span throughout the space for better functionality.

Remarks

D. Conditions Assessment Mechanical:

Fuel gas & fuel oil

Fuel Gas

The hospital heating systems run primarily on natural gas, serving both the boilers and some kitchen appliances.

Fuel Oil

In the event of a natural gas supply service interruption, the hospital has a 10,000-gallon fuel oil storage tank for backup. The steam boilers are capable of firing on fuel oil using a day tank in the boiler room. It is unknown whether regular testing is done, or when the last test fire was performed. Estimated runtime of the boilers on fuel oil is 151 hours assuming two boilers firing at full capacity (56.2 gph) and 85% useable tank volume.

The fuel oil tank also feeds the electrical generators which are tested monthly; maximum oil usage rate is 79.8 gal/hr. Assuming minimum of 96 hours runtime for a hospital application, NFPA 110 requires 133% (10,189 gallons) of fuel storage (assuming no sump or expansion allowance, and that the boilers are not also using fuel oil simultaneously).

If Boilers and generators are both running at the same time, the fuel tank capacity cannot guarantee 96 hours of operation. NFPA 110 prohibits multi-purpose fuel storage in some cases. The fuel storage system should be thoroughly reviewed for capacity and turnover/freshness considerations.

Plumbing

Cold Water & Fire

Water service enters the building at the southwest tip of the curved east expansion. The main pipe routes through the first-floor ceiling to the boiler room and then to a closet in the kitchen. The boiler room branch supplies water to the fire pump system located in the boiler room. The branch to the kitchen closet backfeeds the previous water service and meter which supplies the entirety of the hospital. The previous water service entry pipe at the kitchen closet is disconnected and abandoned.

General condition of water and fire piping is satisfactory. No major issues have been identified.

Hot water

The plumbing hot water system consists of two primary hot water generators, both use steam as their fuel. The first one is located in the Central Mech 139. It was installed in the 1983 addition. This serves the core area, 1983 addition, and the 1999 addition. For this unit there are multiple independent circulation loops and pumps. The second primary hot water generator is located in the 2006 addition and serves the hot water needs of the 2006 and 2009 addition. This hot water system is circulated with a single circulator pump. There is a small third hot water generator, it is an electric type located in central mech 139 and is used for endoscopy.

A project to consolidate hot water generation to a central gas-fired system in the boiler room has been planned and designed but not funded for construction. Intent is to offload the steam boilers and eliminate large hot water storage tanks.

Heating systems

Steam:

Steam is generated in three boilers: B-1, B-2, and B-3. These are dual-fuel boilers, running primarily on natural gas, however they can switch over to the fuel oil backup should natural gas service be interrupted. High pressure

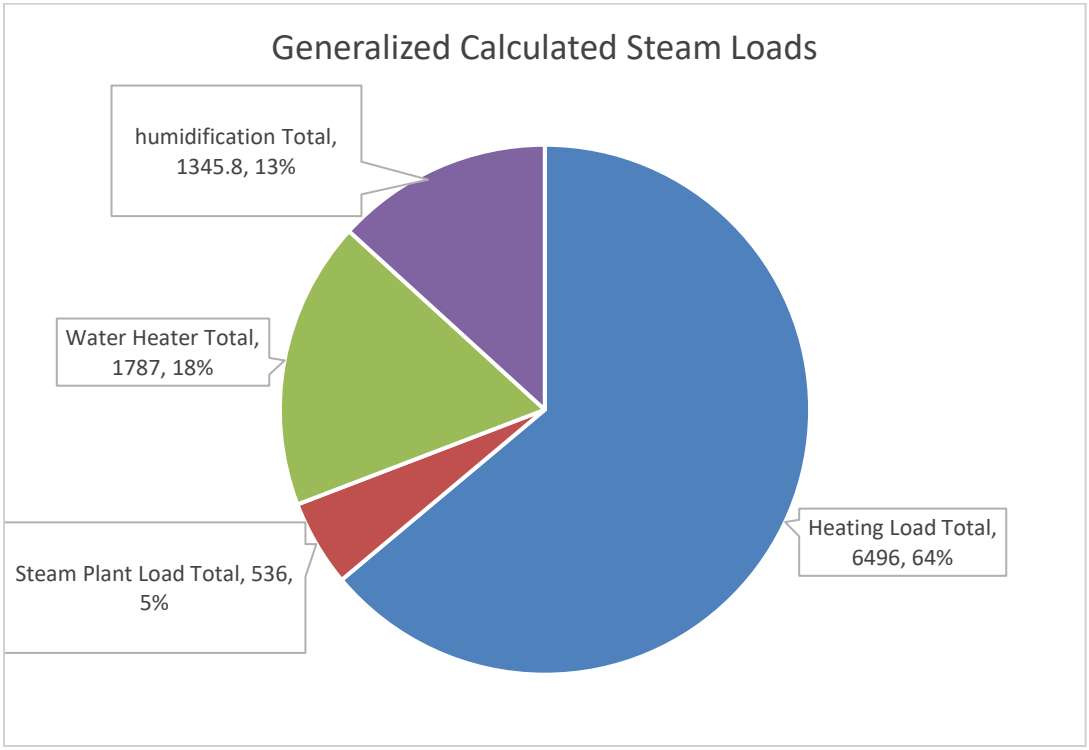
steam is produced at about 65 PSI. Steam is combined from all of the boilers in a header; from there high-pressure lines serve the deaeration tank, sterilizers throughout the hospital, and two pressure reducer stations.

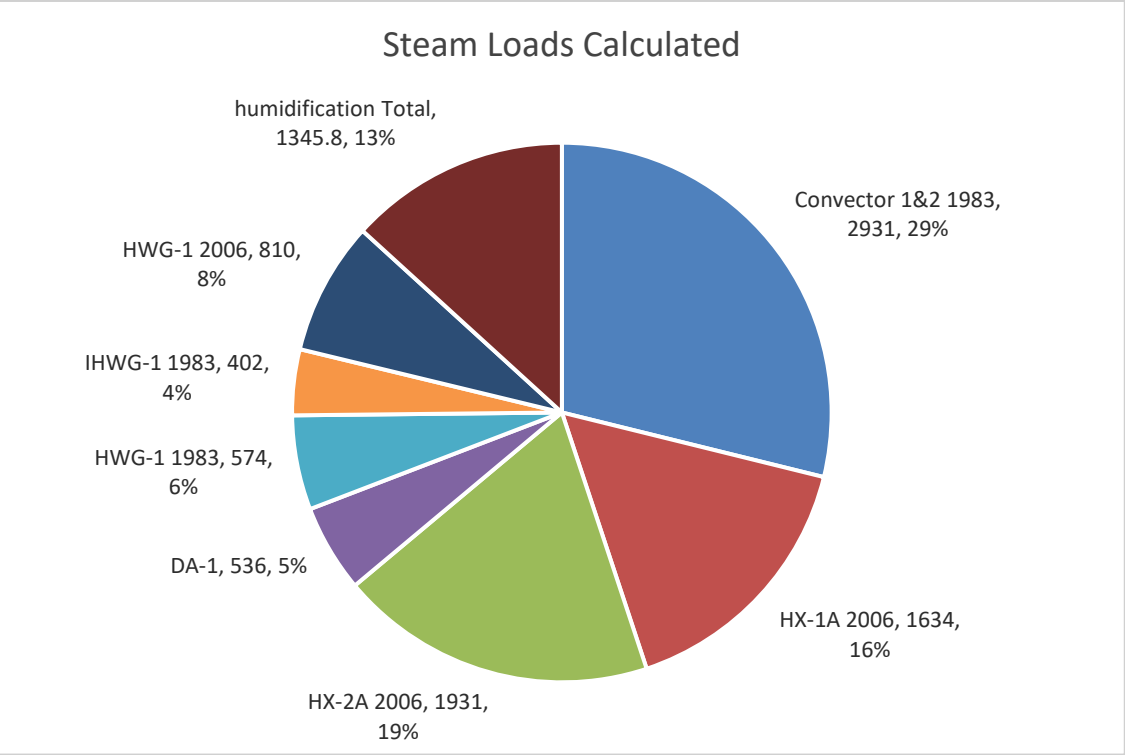
The first pressure reducer station serves the 1983 converter heat exchangers, this also has a line that branches off to serve low pressure steam needs for water heating in the Mech 139 and various humidification units throughout the hospital.

The second pressure reducing station serves the HX-1A and HX-2A, both installed in the 2006 addition. In addition, this pressure-reducing station serves the hot water generator in the boiler room also installed in 2006.

Condensate return comes from various units across the hospital. A-8 is located in West Mech 120 for the humidification equipment there. A-7 is located in the central mechanical space serving the HWG and humidification equipment in that room. A-6 serves the 1983 addition and is the terminus of the high-pressure condensate return. CRU-1 is located in the boiler room 112, serving the hot water generator, HX-1A and HX-2A, and of their associated reducing and control stations.

All of the condensate is pumped to the deaerator where it can be chemically treated and mechanically deaerated before being pumped back to the boilers as feed water.





Hydronics:

The heating system for the building is comprised of three distinct heat exchanger systems. The 1983 Converters transfer heat from steam to a water hydronic system serving most of the hospital including the core area, the 1983 addition, and the 1999 LTC addition. The 1983 Addition and core area are served by a pair of base mounted pumps with control valves at terminal units. In addition this system serves a glycol heat exchanger and system in Mech 139. This additional glycol system serves the heating coils in the air systems: AC-1, AC-2, and HRV.

The 1999 LTC addition is piped in parallel with the 1983 heating system and is served by the same converter but a separate pair of base mounted pumps. This system only serves the 1999 LTC addition. Uniquely the LTC Addition uses primary secondary pumping with their hydronic system where each hydronic terminal unit has its own pump. In addition, numerous issues exist for the 1999 addition, from leaks in the Victaulic fittings in the piping to significant corrosion and pitting on the pipe serving the addition. In the 1999 addition within AHU-1 a heat exchanger transfers the heat to glycol to serve the heating coils within AHU-1. This system is located within the maintenance vestibule of rooftop AHU-1.

The second heating system is HX-1A, installed in the 2006 addition, this 50% propylene glycol system serves the heating coils in the air handlers in the 2006 and 2009 addition AHU-2 and AHU-3. It is also notable that the pumps serving the glycol heating system don't have VFDs likely due to the lower diversity in the demand.

The third element of the heating system is HX-2A, a steam to water heat exchanger installed in the 2006 addition it has dual base mounted pumps on VFDs to service both the 2006 addition and the 2009 addition. This serves the terminal units and reheat coils in the 2006 and 2009 additions.

Cooling

Several of the main air handling units do not have mechanical cooling. This is becoming a major shortfall as climate warms and cooling season lengthens. Those systems that do have cooling are generally newer DX refrigerant types with individual dedicated Air-Cooled Condensing Units at each AHU (see below). An overall strategy for campus cooling needs to be developed as part of master planning and expansion or renovation.

ACCU-1 (2024)

AHU-1 was retrofitted with ACCU-1 and a new cooling coil for DX cooling in 2024. Prior to this there was no mechanical cooling, only an unused hydronic cooling coil installed with the original unit. Condition of the cooling system is like new.

ACCU-2

This DX cooling unit serves AHU-2, installed in 2006, located on the roof adjacent to the AHU.. The zones served by this system suffer from chronic overheating. This appears to be due to proximity to the boiler room and not to a cooling capacity issue. Operationally there are issues with condensate management due to blocked drain pans below the coils. No issues were identified with the equipment condition although they are approaching the end of useful life. Refrigerant type will be an issue for replacement due to new regulations.

ACCU-3

This DX cooling unit serves AHU-3, installed in 2009, located on the roof adjacent to the AHU. No issues were identified with the equipment's performance, capacity, or condition. Refrigerant type will be an issue over the next 10 years due to new regulations.

ACCU AC-1

AHU-8, originally known as AC-1, has a DX refrigerant cooling system installed in 1973 and relocated to the roof in 1983. It likely uses R-22 or another outdated refrigerant. It is far beyond its useful life and should be replaced or eliminated by redesign as soon as practicable. See AHU-9 for more information.

AHU-9 (AC-2) chiller

The Operating Room Suite is served by AHU-9 (formerly AC-2) and its glycol cooling coil and associated roof-mounted chiller. Both were installed in 2017 and are operating successfully. The chiller was sized with extra capacity to connect with a redesigned AHU-8 (AC-1). This upgrade project has not been designed, and the concept may be obsolete depending on the renovation plans selected by SPH.

Split Systems / spot cooling

Many local DX split systems are installed throughout the facility to provide local cooling for high cooling load locations. These are typically inexpensive AC only units placed wherever convenient on the roof. Condition varies with age and usage and exposure, but life expectancy is generally 5 to 10 years. Use of these units is a short-term solution; long-term planning is needed.

Server & Comm Rooms

Similar to spot cooling, split AC systems are deployed as server and telecom room cooling. While these are generally successful in cooling the spaces, there is no opportunity for energy recovery, and the telecom equipment load continues to grow. Further, the server room cooling units will not operate during cold weather and must be kept warm. The existing units are now undersized. A project to upgrade the systems has been planned and designed but not funded for construction.

Ventilation

The hospital is served by multiple air handlers and pieces of air handling equipment. This has been mapped and shown on plan views, see Appendices. Ventilation types and strategies vary widely and are not interchangeable with each other. For example, the 1999 LTC addition, 2006 addition, 2009 addition, and the 2017 OR Addition all use RHC with VAVs. However, the 1983 addition uses only RHCs without VAVs.

Numerous individual exhaust fans serve the facility and are listed in the equipment condition summary.

The table below summarizes the key aspects of the main HVAC systems. Refer to the Appendices for more information on coverage areas and for diagrams of each system.

EXISTING MAIN AIR HANDLING SYSTEM SERVICE AREAS AND CAPACITIES

BAS ID	Tag	Year	Service Area	HVAC Strategy	Location	SF type	SF CFM	SF TSP	SF HP
AHU-1	AHU-1 SF/RF	2002	LTC & Phys Rehab	VAV, Economizer, **DX ACCU-1**	Roof	**Plug Fan Array 2024**	14,100	?	20
AHU-2	AHU-2 SF/RF	2006	East Exp ER & Mammography	VAV, DX ACCU-2	Roof	Plug	18,000	5	25
AHU-3	AHU-3 SF/RF	2009	East Exp Patient Wing	VAV, DX ACCU-3	Roof	Plug	28,000	5	40
AHU-4	SF-1/ EF-4	1983	2nd Flr W (24hr)	CV w Zone RHC, Economizer	120 West	**Plug Fan Array 2024**	13,200	4.25	20
AHU-5	SF-2/ EF-5	1983	1st Flr W (10hr)	CV w Zone RHC, Economizer	120 West	**Plug Fan Array 2024**	13,300	4.25	20
AHU-6	SF-3/ EF-6, EF-8	1983	2nd Flr LDR & Nursery	CV w Zone RHC; Air/Air HR on EA/OA (50%OA, 24 hr) , Economizer	120 West	FC housed centr	2,700	5	5
AHU-7	SF-4/ EF-7	1983	1st & 2nd East (HK, Imaging)	CV w Zone RHC; Air/Air HR on EA/OA (50%OA, 10hr) , Economizer	East Mech	FC housed centr	9,200	5	20
AHU-8	AC-1/ RF-1	1973	1st Servery, Linen, Records, storage 2nd RT, pharm, triage, recept	CV dual deck MultiZone; DX	139 Central	FC housed centr	8,920	?	?

EXISTING MAIN AIR HANDLING SYSTEM SERVICE AREAS AND CAPACITIES									
BAS ID	**Tag**	**Year**	**Service Area**	**HVAC Strategy**	**Location**	**SF type**	**SF CFM**	**SF TSP**	**SF HP**
AHU-9	AC-2	2017	Operatory - Surgery	CV, Chilled water	139 Central	plug array (2)	6,000	4.5	10
AHU-10	N/A	2009	MRI Addition		Roof				

Condition Summary

The following tables and charts illustrate the overall extent of maintenance and repair needs at SPH. The primary takeaway is the pileup of deferred maintenance and replacement needs facing the hospital. Difficult decisions lie ahead regarding whether to replace aging equipment or renovate and redesign entire sections of the hospital. Refer to separate section on proposed Renovation Phasing for recommendations on how to proceed.

The next pages include these items:

- Summary of observed mechanical deficiencies listed in order of priority
- List of all HVAC and Plumbing equipment sorted by age and condition, with oldest and most in need of repair at the top
- Chart of equipment replacement project needs each year for the next 25 years

E. Conditions Assessment Electrical:

Power:

System and Equipment Condition

The power system is generally aged and in fair to poor condition. A few switchboards, panels and feeders have been added in the last 15 years but the majority of the equipment, feeders, and panels were installed more than 15 years ago. Many parts and components for these switchboards, panels, fused switches, and breakers are becoming hard to find and some replacement parts are no longer available. Some of the power distribution infrastructure is from the original 1974 project. Some items have been phased out or replaced in future remodels and additions.

Generators

The generators are both old, though one generator is from the 1983 installation. The generators have capacity for current loads but would be limited with significant additional loads on the essential electrical system. There are monitoring and reporting issues with the generator annunciators and outputs that are not compliant with current codes. The generator room does not have code required clearances around some panels and equipment.

Deficiency ID	Title	Priority Code	Deficiency Code
M14	Equipment Replacement Backlog	0	8, 18
M19	LTC Heating Piping failing	0	18
M1	Steam Valve Leaking	1	18
M8	Pump-2A/B Cavitation	1	18
M10	No Cooling in older Ventilation Systems AHU-4,5,6,7	1	1
M11	AHU-8 beyond service life	1	18
M16	Filters upstream of Humidifiers in older AHUs & OR AHU-9	1	1
M17	Boiler Room Overheating Adjacent Spaces	1	8, 10, 18
M20	Old elevator pit / machine room not ventilated	1	2
M21	Showers in LTC have poor temperature control	1	1
M23	Energy issues: constant volume air; temperature reset schedules;	1	8, 18, 19
M2	Condensate Valve Leaking	2	18
M3	Condensate Trap Failure	2	18, 8
M6	CRU-1 (A-9) Leak and Damage	2	18
M12	No Carbon Filters in older Ventilation Systems AHU-4,5,6,7	2	1, 4
M15	Fuel Oil Storage Capacity?	2	2
M4	Condensate Reciever Insulation	3	18, 8
M5	Condensate Reciever Insulation	3	18, 8
M7	Air Management Strategy	3	18
M9	Crawl Space Corrosion	3	10, 18, 22, 17
M13	No Dehumidification in OR AHU-9	5	1
M18	Comm rooms too hot	5	4, 8
M22	Imaging too cold (office)	5	18

Legend

	Priority Year Code
0	Emergency or address soon
1	Address within 12 months
2	Address within 2 years
3	Address within 3 years
4	Address within 4 years
5	Address within 5 years

Deficiency Code	
1	Patient Care
2	Life Safety Compliance
3	General Safety
4	Environmental Compliance
5	Program Deficiencies
6	Unmet Supportable Space Needs
7	Handicapped Compliance
8	Energy Conservation
9	Plant Management
10-16	Architectural Maintenance & Repair
17	Structural Maintenance & Repair
18	Mechanical Maintenance & Repair
19	Electrical Maintenance & Repair
20	Utilities Maintenance & Repair
21	Grounds Maintenance & Repair
22	Painting Maintenance & Repair
23	Roof Maintenance & Repair
24	Seismic Mitigation
25	Other

M1 **Steam Valve Leaking**

Mechanical

Observed Deficiency and Proposed Correction

Priority Code:	**1**	**Deficiency Code:**	**18**

Room Number	**Room Name**	**SQFT of Area (if Applicable)**	
112	Boiler Room		

Department or Area

Mechanical Space

Priority Year

2025

Narrative Description of Deficiency / Problem:

An isolation valve on the steam-reducing station serving HWG-1, HX-1A, HX-2A, and some additional misc. heating equipment is leaking. While this does present a small continuous waste of energy and conditioned water, more importantly it will lead to further deterioration of the isolation valve.

Narrative Description of Correction / Resolution:

Isolate the valve from the steam system and replace the valve.

Remarks

This valve should be isolatable without any major impacts on the system as long as it is done quickly and preferably in the summer to minimize the impact of the 2006 & 2009 East Expansions heating system going down.

M2 **Condensate Valve Leaking**

Mechanical

Observed Deficiency and Proposed Correction

Priority Code: **2** **Deficiency Code:** **18**

Room Number	Room Name	SQFT of Area (if Applicable)	
XX	East Mechanical		

Department or Area

Mechanical Space

Priority Year

2026

Narrative Description of Deficiency / Problem:

At the end of a small branch of the high-pressure steam line that serves a piece of equipment on the floor above, there is a high pressure condensate return. The final isolation valve on the branch down stream of the bucket steam trap is leaking. This will contribute humidity in the space, waste conditioned water, waste energy, and will likely lead to more rapid deterioration of the valve.

Narrative Description of Correction / Resolution:

The valve should be replaced.

Remarks

This valve connects to the rest of the HP condensate system, it may require quite a bit of the system to be isolated. This isolation may need to extend back to the mechanical space this outage must be coordinated with the user groups.

M3 **Condensate Trap Failure**

Mechanical

Observed Deficiency and Proposed Correction

Priority Code: **2** **Deficiency Code:** **18, 8**

Room Number	Room Name	SQFT of Area (if Applicable)	
XX	East Mechanical Room		

Department or Area

Mechanical Space

Priority Year

2026

Narrative Description of Deficiency / Problem:

The drip leg at the end of the high-pressure steam service main is producing a chattering sound. Likely the bucket trap has lost its prime. This will cause steam to escape out of the trap and into the condensate line, creating backpressure that could cause issues in other traps. This steam escaping through the trap is also wasted energy and will likely cause the faster than expected deterioration of the trap.

Narrative Description of Correction / Resolution:

The upsteam valve to the trap should be closed for a few minutes and gradually reopened. If this occurs with any frequently then replacing the bucket trap with different trap type should be considered.

Remarks

Careful consideration when selecting a replacement trap, and sizing the replacement trap. Due to the lack of regular traffic in the area the trap is likely not frequently observed, this could lead to issues going unnoticed for extended periods of time. Reliability should be a prime consideration for any replacement to this trap.